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THESIS

THE BENEFITS OF COLLABORATIVE PROCESSES FOR ESTABLISHING ALL HAZARD INCIDENT MANAGEMENT TEAMS IN URBAN AREA SECURITY INITIATIVE REGIONS

by

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September 2013

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The findings of this case study of collaboration in the Phoenix Urban Area found that participants in the process viewed positively the emphasis by leaders on collaboration, the frequency that collaboration took place, and the benefits that arose from mutual collaboration. There is minimal agreement among participants about how much collaboration has taken place in developing the AHIMT program. The benefits of collaboration are believed to include the sharing of resources, developing positive relationships with other agencies, reducing operational costs, and providing a common framework for identifying and solving problems. These findings support the following recommendations for using collaboration in regional initiatives: an overall program strategy document that addresses the need for and commitment to collaboration, governance, personnel, competency, remaining relevant, and an exercise schedule.

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ABSTRACT

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LIST OF ACRONYMS AND ABBREVIATIONS

ADEM	Arizona Division of Emergency Management
AHIMT	All Hazards Incident Management Team
ANOVA	Analysis of Variance
ASF	Arizona State Forester
AZDOHS	Arizona Department of Homeland Security
DHS	Department of Homeland Security
DHHS	Department of Health and Human Services
EMAC	Emergency Management Assistance Compact
HSCC	Homeland Security Coordinating Council
EFO	Executive Fire Officer
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Agency
FDNY	Fire Department of New York
GAO	United States Government Accountability Office
ICC	Inter-organizational Collaborative Capacity
ICS	Incident Command System
IMT	Incident Management Team
IST	Incident Support Team
IMS	Incident Management System
IMT	Incident Management Team
LSA	Logistical Staging Area
MMRS	Metropolitan Medical Response System
NAPA	National Academy of Public Administration
NIMS	National Incident Management System
NWCG	National Wildfire Coordinating Group
NPS	Naval Postgraduate School
PRE	Proportional Reduction in Error
r2	Pearson's Product-Moment Correlation Coefficient Squared
RRT	Rapid Response Team
ROSS	Resource Ordering Status System

SHSGP	State Homeland Security Grant Program
SIMT	State Incident Management Team
SWA	Southwest Area
SWCC	Southwest Coordination Center
UASI	Urban Area Security Initiative
UAWG	Urban Area Working Group

EXECUTIVE SUMMARY

Urban areas no longer function in isolation. The purpose of the Phoenix urban area's three all hazards incident management teams is to tackle shared challenges for first responders in managing catastrophic incidents and large-scale special events that typically do not adhere to municipal borders. Since the mid-1970s, public safety agencies in the Phoenix Urban Area have successfully utilized collaborative processes among jurisdictions and agencies for executing numerous projects and programs that address regional challenges that exceed the resources of a single organization. In 2008, consistent with past practice, the Phoenix Urban Area began a collaborative process to establish three all hazards incident management teams (AHIMT). These teams provide command functions during large-scale special or catastrophic events. In 2013, one team is functional and the other two AHIMT are not yet deployable.

This research constitutes a case study of the 2008 Phoenix AHIMT process, especially the challenges and obstacles to collaboration. The questions addressed in the research pertain to the Phoenix Urban Area specifically. However, the results of this study can be used to inform general expectations about the performance of regional associations of emergency organizations that attempt collaboration-based initiatives.

One data element for this case study is a survey of individual command officers who participated in the 2008 AHMIT process, made available by the jurisdiction that conducted the research. These data were in the form of questionnaire responses, so they could be re-analyzed to address some specific questions that are relevant to this thesis. The other two sources of data for this case study were (1) documents and records kept by and for the Phoenix Urban Area authority as well as records from individual agencies, and (2) observations and interviews conducted by the researcher.

The findings of this case study of collaboration in the Phoenix Urban Area revealed that the participants have positive perceptions of the emphasis by leaders on collaboration, the frequency of collaboration, and the benefits of collaboration. There is minimal agreement among participants on how much collaboration has taken place in developing the AHIMT program. The benefits of collaboration are believed to include the sharing of resources, developing positive relationships with other agencies, reducing operational costs, and providing a common framework for identifying and solving problems. Command officers from agencies of less than 300 members tend to place a higher emphasis on reduced cost, while command officers of agencies with greater than 300 members tend value a common framework for identifying and solving problems. This reflects the environment in which each group works; however, an appreciation of the challenges facing large versus small agencies could provide paths for accommodation and the reduction of tensions. The Phoenix Urban Area command officers believe that leadership's commitment to collaboration is substantive enough to accept cost without concern. These findings support the following recommendations for using collaboration in regional initiatives: an overall program strategy document that addresses the need for and commitment to collaboration, governance, personnel, competency, remaining relevant, and an exercise schedule.

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I. INTRODUCTION

First responders throughout the world are now frequently engaging in increasingly complex emergency incidents that require robust and flexible command and control systems. Commanders must identify, summon, and manage a myriad of resources while directing the response and recovery portions of such incidents. Professor Ted Lewis, Naval Postgraduate School, in his book, *Bak's Sand Pile, Strategies for a Catastrophic World*, states "Terrorism, hurricanes, oil spills, electrical blackouts, transportation system collapses, and political and social upheaval all threaten modern society…It seems as though the challenges are getting bigger as well as more frequent, across many disciplines."[1] To effectively begin to address catastrophic disasters and large-scale special events requires that public safety agencies work both horizontally and vertically with other jurisdictions and agencies.

Since the mid-1970s, to address operational challenges in the Phoenix Urban Area, public safety agencies have successfully supported one another through collaborative processes in numerous projects and programs. Collaboration across the Phoenix urban area jurisdictions and agencies has proven essential in providing both the motivation and structure guiding large-scale event and response planning. This approach has been successful for the two National Football League Super Bowl Games, more than 30 Fiesta Bowl college football games, professional sports all-star games, multiple annual marathons and triathlons, professional golf tournaments, as well as biannual major motor sport races.

An additional complication is that the area for public safety response covers 9,220 square miles, encompasses 23 incorporated cities and towns, and

[1] Ted G. Lewis, *Bak's Sand Pile: Strategies for a Catastrophic World* (Williams, CA: AGILE Press, 2011), 9.

is home to a population of approximately four million people.[2] The Phoenix Urban Area includes the nation's largest nuclear power facility, largest university, fuel storage for 84 percent of Arizona, and Sky Harbor International Airport, which is the nation's ninth busiest airport. Protection and prevention activities for these critical infrastructure targets demand careful coordination across the region. Preparation for acts of terrorism is at the forefront of the Phoenix Urban Area's collaborative efforts, as the region has ties with the two deadliest terror attacks to occur in the United States; the Oklahoma City Bombing and the 9–11 attacks.

In 1995, the Federal Building in downtown Phoenix was the original target for Timothy McVeigh and Terry Nichols after they had perfected their explosive devices in northwest Arizona. Both men were seeking revenge for perceived transgressions of the federal government during the 1993 siege at Waco, Texas. After learning that two of the three federal agency supervisors involved in Waco were in Oklahoma City, they altered their target to the Murrah Federal Building located there.[3]

Hani Hanjour, one of the hijackers who served as a pilot on September 11, 2001, took flight lessons and received a pilot's license in the Phoenix Urban Area in 1999. He and fellow hijacker Nawaf Al-Hazmi lived in the region occasionally, as late as March 2001.[4] On July 10, 2001, the Federal Bureau of Investigation (FBI) Phoenix Office sent three electronic communications to FBI counterterrorism offices expressing concerns over Osama bin Laden sending Islamic extremists for flight training in the United States. These became known as the "Phoenix Memos," and underscored that there were an "inordinate number

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[2] "Maricopa County QuickFacts from the U.S. Census Bureau," United States Census, last modified June 27, 2013, retrieved August 12, 2013, from http://quickfacts.census.gov/qfd/states/04/04013.html.

[3] Lori Gregory (Special Agent Federal Bureau of Investigation, Phoenix office), interview with author, July 26, 2013.

[4] Federal Bureau of Investigation, "Summary of Penttbom Investigation" (Washington, DC: Federal Bureau of Investigation, 2004): 18, Federal Bureau of Investigation, retrieved July 28, 2013, from http://vault.fbi.gov/9–11%20Commission%20Report/9–11-fbi-report-2004-02%28feb%29.

of individuals of investigative interest" in Arizona flight schools. The Phoenix Office requested that FBI headquarters accumulate a list of civil aviation universities and colleges around the country and establish liaison with these schools."[5]

The issuance of the *Final Report of the National Commission on Terrorist Attacks upon the United States*, which reported these local links to Phoenix, caused enhanced vigilance about terrorism in the public safety community.[6] By 2008, the Phoenix Urban Area Security Initiative Working Group identified a gap in capability for managing incidents involving special public events—those with potential for a catastrophic incident at a critical infrastructure facility and acts of terrorism involving either a special event or critical infrastructure facility. This working group developed into the Central Region AHIMT Committee. This committee formulated a strategy to address the need for an overarching system of providing a functional incident command at such events or incidents.[7]

An incident commander from a National Incident Management Organization team provided guidance and insight during the initial incident management team (IMT) formation meeting. What is now the Central Region AHIMT Committee evaluated the Phoenix Urban Area's geographical size, population distribution, number and scale of special events, critical infrastructure, and potential for acts of terrorism. This analysis resulted in an altered plan for three separate, but interconnected, IMTs. This rationale allowed for the

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[5] Kevin Michael Derksen, "Commentary: The Logistics of Actionable Intelligence Leading to 9/11," *Studies in Conflict & Terrorism* 28, no. 3 (May 2005): 261, doi: 10.1080/10576100590928133.

[6] National Commission of Terrorist Attacks Upon the United States, *The 9/11 Commission Report: Final Report of the National Commission of Terrorist Attacks upon the United States* (New York: WW Norton and Company, 2004), 220–226.

[7] To accomplish this goal and remain compliant with the mandates contained within the *National Response Framework*, the public safety agencies within the Phoenix Urban Area chose to work collaboratively to develop an incident management team (IMT). United States Department of Homeland Security, *National Response Framework* (Washington, DC: United States Department of Homeland Security, 2008), Federal Emergency Management Agency, retrieved August 12, 2013, from www.fema.gov/pdf/.../nrf/nrf-core.pdf.

deployment of one or two IMT to provide command functions at special events and one IMT to remain available in case of a local simultaneous, significant emergency incident.

Another factor in the three IMT plan was the potential need to dispatch one or two IMT to a catastrophic event in another region of the country. With three teams, at least one would still remain viable to protect the local area. The three IMT model would serve as a framework for cooperation among the various jurisdictions and agencies in the Phoenix Urban Area. This strategy enables continuous planning and cohesive incident command functions at multiple special events and complex incidents.

The Central Region AHIMT Committee also examined the number of response personnel available to determine which of the USFA/FEMA team types (1 through 5) could be realistically created in Phoenix Urban Area.[8] The number of personnel and functional capabilities of the team differentiate the levels. A Type 1 team is the largest with 35 to 50 members and the highest qualification requirements for personnel. A Type 2 team is composed of 20 to 35 members and demands slightly less strenuous qualifications. A Type 3 is comprised of 10 to 20 members with qualifications similar to the Type 2 team.[9] Team types 4 and 5 are small with specialized functionality. The Central Region AHIMT Committee concluded that Type 3 Teams (also called All Hazards Incident Management Teams) would best serve the region because of the response demands faced and the need to provide appropriate staffing for each position within three teams. To differentiate the Phoenix Urban Area Teams, they were labeled by geographic location as the Central, East Valley and West Valley Teams.

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[8] Jim McKay, "All-Hazards Type 3 Incident Management Teams Are Catching On," last modified March 16, 2012, Emergency Management, retrieved July 13, 2012, from www.emergencymgmt.com/disaster/All-Hazards-Type-3-Incident-Management-Teams.html.

[9] Ibid.

The Phoenix Urban Area, and the definition adopted for the purpose of this thesis, follows the United States Fire Administration definition of an AHIMT as:

> A multi-agency/multi-jurisdictional team for extended incidents formed and managed at the local, state, or tribal level. It is a designated team of trained personnel from different departments, organizations, agencies, and jurisdictions. Type 3 IMTs are deployed as a team of 10–20 trained personnel, representing multiple disciplines who manage major and/or complex incidents requiring a significant number of local, state, or tribal resources.[10]

This definition is used exclusively in the U.S. public safety community; no other working definition has been proposed in either the technical or professional literature.

The 10 to 20 members that make up a Phoenix Urban Area AHIMT provide for the staffing of specific command level positions. These include the incident commander; deputy incident commander; section chiefs for operations, logistics, planning, and finance and administration; public information officer; liaison officer; safety officer; resource unit leader; intelligence officer; and a limited number of other support positions.[11] Each position on the team addresses a critical function within the Incident Command System (also called Incident Management System).

In 2008, a review of available national data suggested the only municipally sponsored Incident Management Teams existed within the Fire Department of New York (Type 2 level with more than 60 deployable members) and Chicago (Type 3 Team). As of 2013, of the 137 nationally listed Type 1 to Type 3 teams, Fire Department of New York (FDNY), Chicago, and one of the three Phoenix

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[10] United States Fire Administration and Federal Emergency Management Agency [FEMA], "USFA Type 3 Incident Management Team (AHIMT) Overview," last modified February 16, 2012, United States Fire Administration and Federal Emergency Management Agency, retrieved July 14, 2012, from http://www.usfa.fema.gov/fireservice/subjects/incident/imt/ahimt-overview.shtm.

[11] National Wildfire Coordinating Group, *Advanced ICS: ICS for Command and General Staff Complex Incidents I-400 Student Workbook* (NFES 2908), (Boise, ID: National Wildfire Coordinating Group, 2006), 2–22.

AHIMT are the only fully functioning municipal IMTs. Counties, states, federal, or regions sponsor the remaining teams.[12]

A. PROBLEM STATEMENT

In 2008, the collaborative process for establishing three functional AHIMT in the Phoenix Urban Area began with a meeting of the Central Region AHIMT Committee. A review of the notes and agendas from the initial meetings did not reveal which agencies or individuals were in attendance; although, the author of this thesis was present during all of these meetings. As previously noted, the Central Region AHIMT Committee evaluated geographical size, population distribution, number and scale of special events, critical infrastructure, and potential for acts of terrorism, which resulted in the determination that three AHIMTs was the appropriate number of teams for the region. Additionally, agreements were reached regarding AHIMT location (geographically, east, central, and west) training, necessary equipment, and the need for intergovernmental agreements (IGA). A timeline was formulated reflecting the expectation that a three-year process would reach the final goal of establishing three AHIMT. Although the three AHIMTs in the Phoenix Urban Area began the development process at the same time, as of 2013, the teams are currently in different phases of maturation.

The Phoenix Urban Area Central AHIMT was deployed to a wildfire in California during 2008 and assigned to Hurricane Sandy in 2012. Both the East Valley AHIMT and West Valley AHIMT have not achieved deployable or functional status with the National Wildfire Coordinating Group (NWCG). Having only one of three AHIMTs deployable after five years of development work raises the question of what has caused the inconsistency between team capabilities. This thesis proposes that four hypotheses exist to explain the discrepancy in functionality among teams. The first hypothesis is that a regularly scheduled

[12] Team Center, "IMT Center," Team Center, retrieved July 15, 2012, from http://imtcenter.net/main/default.aspx.

rotation in command staff in the Phoenix Fire Department contributed to a decline in the desire to collaborate among the East and West Valley participating agencies. The second hypothesis is that motivation waned over time within the two less developed teams because members perceived a lack of progress on team construction, which resulted in diminished collaboration. A third hypothesis is that both of the first hypotheses describe forces acting simultaneously on the two less developed teams. The final hypothesis is that multiple unknown reasons exist which caused a reduction in the desire to collaborate on the part of the East and West Valley Teams. Each of the above hypotheses is underlain by a failure of the inter-organizational collaborative capacity (ICC).

According Naval Postgraduate School Graduate School of Business and Public Policy Professors Susan Page Hocevar, Erik Jansen, and Gail Fann Thomas, ICC is "the capability of organizations (or a set of organizations) to enter into, develop, and sustain inter-organizational systems in pursuit of collective outcomes."[13] This thesis aims to carefully assess Phoenix Urban Area ICC relative to creating AHIMTs along the lines described by Professors Hocevar, Jansen, and Thomas. In doing so, the thesis can produce recommendations for balancing the development of the three AHIMTs by examining the capacity and desire to collaborate, how to sustain collaboration, and what factors reduce collaboration.

Both the East and West Valley AHIMTs have numerous unaccomplished tasks to complete before they become functional AHIMTs. These tasks include:

- creating an overarching strategy document that incorporates the requirements of distinct, yet interconnected organizations,
- the development of intergovernmental agreements with City Council approvals from the various municipalities,
- a standardized training curriculum,
- task book completion for each specific AHIMT position,

- Susan Hocevar, Erik Jansen, and Gail Thomas, "Inter-Organizational Collaboration: Addressing the Challenge," *Homeland Security Affairs* 7 (September 2011): 1.

- initial position training classes,
- establishment of a continuing education program, scheduling for large-scale special events, and
- registering with FEMA and the Resource Ordering Status System (ROSS).[14]

Successful completion of these tasks provides a path to functionality for the East and West Valley Teams. Furthermore, a record of successful completion could also serve as templates for action in other urban areas in the country for establishing AHIMT in their regions.

B. SIGNIFICANCE OF THESIS RESEARCH

In the late 1990s, the National Wildfire Coordinating Group (NWCG) recognized that a well-trained and experienced incident management team (IMT) could provide for incident command functions in environments outside of the wildfire arena. As noted in the summer 2006 edition of the United States Forest Service's quarterly journal, *Fire Management Today*, the nation's IMTs have performed command and control functions at large-scale incidents beyond wild land fires.[15] This journal article also noted that national IMTs provided command functions at the World Trade Center on September 11, 2001, Hurricane Katrina in 2005 and search and recovery efforts following the Space Shuttle Columbia disaster.[16]

Because of the utility and versatility of incident management teams in these large-scale incidents, the U.S. Department of Homeland Security (home agency to FEMA and the NFA) adopted requirements for the use of IMTs in several governing doctrines. The purpose statement of Homeland Security Presidential Decision 5 reads, "To enhance the ability of the United States to

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[13] Resource Ordering and Status System, "ROSS Home," last modified March 5, 2012, Resource Ordering and Status System, retrieved August 12, 2013, from http://ross.nwcg.gov/.

[14] United States Department of Agriculture, Forest Service, "Responding in Force to Hurricane Katrina," *Fire Management Today* 66, no. 3 (summer 2006): 62.

[15] Ibid., 34.

manage domestic incidents by establishing a single, comprehensive national incident management system."[17] The *2007 National Homeland Security Strategy* mentions the importance of IMT in implementing the National Incident Management System (NIMS).[18] The *2010 Quadrennial Security Review Report* in Goal 5.3 states, "When an incident occurs that is beyond local response capabilities, communities must be able to obtain assistance from neighboring jurisdictions and regional partners quickly, making a robust regional capacity vital to effective emergency response."[19] Goal 1.3 clarifies the need for protecting "…government leaders, facilities, and special events."[20]

A functioning AHIMT provides the various command functions within the Incident Command System (ICS) as mandated by the *National Response Framework*.[21] It is ironic that in spite of many national level strategic documents that call for creation of nationally and regionally capable incident management teams, so few are actually operating in 2013 and so little research has been done on their functionality and on ways to effectively create teams in the first place. Thus, the goal of this thesis to better specify the experience and outcomes of a collaborative process for developing a fully established Phoenix Urban Area AHIMT program would provide a significant resource for the region, state, and nationally when functional. The conclusions and recommendations from this

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[16] United States Government Printing Office, "Homeland Security Presidential Directive 5: Directive on Management of Domestic Incidents," *Weekly Compilation of Presidential Documents* 39, no. 10 (February 8, 2003), 280–285, retrieved August 12, 2013, from https://www.hsdl.org/?view&did=439105.

[17] United States Department of Homeland Security, "National Strategy for Homeland Security," October 2007, http://www.dhs.gov/xlibrary/assets/nat_strat_homelandsecurity_2007.pdf.

[18] United States Department of Homeland Security, *Quadrennial Homeland Security Review Report: A Strategic Framework for a Secure Homeland* (Washington, DC; United States Department of Homeland Security, 2010), retrieved August 12, 2013, from http://www.dhs.gov/xabout/gc_1208534155450.shtm.

[19] Ibid., 62.

[21]United States Department of Homeland Security, *National Response Framework*, 10.

research will provide a framework for other urban areas that seek to establish an AHIMT.

C. RESEARCH QUESTION

The case study is one of the most flexible research designs in social science. It allows for multiple sources of data, for use of qualitative and quantitative techniques for both data collection and analyses, and for assessments of the subject over time.[22] Because of the great design flexibility, it is important to devise specific research questions to guide the types and sources of information that will compose the research. For this thesis, five specific research questions are addressed:

1. Do agency leaders emphasize collaboration, is it observed frequently, and do members believe that benefits accrue from collaborating with other agencies?
2. Does mission success require collaboration and how are different potential benefits of collaboration perceived? How do participants rank the importance potential collaboration outcomes such as resource sharing, reduced costs, better comprehension of outside agency missions and creation of enhanced frameworks for problem solving?
3. Are agencies willing to invest in collaboration, even at costs to themselves? Is willingness to invest affected by the size of the agency or by the extent to which leaders emphasize the importance of collaboration?
4. How much collaboration characterizes the AHIMT in the greater Phoenix area? Has this collaboration been consistent over the years? Operationally, do agency members know who to contact for decisions and collaboration in other organizations?
5. How does collaboration affect AHIMT performance? Is this perception of the importance of collaboration affected by the stage of development of the individual agency AHIMT? Would the absence of collaboration among teams and jurisdictions in the greater Phoenix area affect aggregate preparedness?

[22] Robert K. Yin, *Case Study Research Design and Methods*, 4th ed. (Thousand Oaks, CA: Sage Publications, 2009), 111.

D. RESEARCH STRATEGY

This research uses a classic case study framework that evaluates the collaborative process that occurred in establishing three AHIMT in the Phoenix Urban Area between 2008 and 2013. Consistent with Robert K. Yin's book *Case Study Research Design and Methods*, data for analysis was obtained from multiple sources, or data triangulation, which allows for a more accurate assessment of what transpired.[23] Data sources included:

1. an analysis of previously collected data on leadership and willingness to collaborate in the Phoenix Urban Area AHIMT program;
2. collections of documents generated by the AHIMTs themselves and government records from the city, county, regional, state and national governments; and
3. personal observations and transcriptions of interviews conducted by the author of this thesis.

The method chapter of this thesis presents an in-depth review of the case study method and analysis conducted. The literature review chapter examines collaboration in the context of definitions, benefits, drawbacks, government, leadership, and the impact of collaboration within the Phoenix Urban Area AHIMT program. The analysis chapter evaluates responses to a census of command officers participating in the AHIMT process and directly addresses each research question. The final chapter of this thesis discusses the findings and interpretation of each of the five questions, which provide the basis for the recommendations and conclusions.

[23] Ibid., 114–117.

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II. METHOD

A. RESEARCH APPROACH

Beginning with the creation of the U. S. Department of Homeland Security (DHS) in 2003, the national government has sponsored a large number of initiatives aimed at increasing local and regional preparedness and capacity to respond. Since 2005, nearly all of these programs and initiatives have been aimed at urban areas and their success has hinged on the ability of multiple local governments, public safety departments and federal agencies to work jointly through a problem to plan, train, equip, and, ultimately, put responders in the field.[24] Therefore, collaboration across agencies and organizations has become a critical issue for the emergency management profession. The purpose of this research, and the general research question, is to examine collaboration in the emergency management setting, with particular reference to the Phoenix Urban Area AHIMT program. Perspective is a critical issue in research and guides the nature of questions as well as the possible findings.[25] This examination of collaboration in the Phoenix Urban Area will be viewed from the perspective of command officers (both fire and police departments) involved in the initial phases of development of the AHIMT program. The detailed research questions are presented in the introduction to the analysis in Chapter V.

Varieties of study designs are amenable to investigating command officer's perceptions about collaboration in federally sponsored programs. The interest here is in obtaining in-depth information, looking at acts of collaboration in context, and if possible, using multiple data collection techniques. These interests are served most effectively by a case study design. Robert Yin, Professor, Department of Urban Studies and Planning, Massachusetts Institute

[24] Ronald Perry and Michael K. Lindell. *Emergency Planning*, 1st ed. (Hoboken, NJ: John Wiley & Sons, 2007), 401.

[25] Earl R. Babbie, *Survey Research Methods*, 2nd ed. (Belmont, CA: Wadsworth Publishing Company, 1990), 19.

of Technology, and author of *Case Study Research*, defines a case study as an investigation that examines "a contemporary or historical phenomenon," "looks at it in context," and "involves the use of multiple sources of information."[26] A case study research design, however, involves the same elements as any other research design: formulate research questions, devise approaches to answering the questions, assemble the answers and interpret the answers.[27]

In designing a case study to answer the principal research question, this study will use three primary sources of data:

1. a study of all hazard incident management teams in the Phoenix urban area commissioned by the Phoenix Fire Department (PFD Study) (Appendix A);
2. records and documents generated by the AHIMTs themselves and government records from the city, county, regional, state and national governments; and
3. personal observations and transcriptions of interviews conducted by the author of this thesis.

In the tradition of case studies, the data from each of these sources were generated by a different research technique. The PFD Study (Appendices A and B) is a traditional census of command officer participants in the regional AHIMTs in the Phoenix Urban Area. Organizational and governmental records and documents form a traditional source of information for analysis and for program evaluation.[28] Such information is usually collected systemically and informs the researcher, in an unobtrusive fashion, about performance, plans, approach and outlook. Finally, observations and semi-structured interviews are the classic research method for social science.[29] The thesis author undertook those reported here over a period of five years, while training and serving as a member

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[26] Yin, Case Study Research Design and Methods, 18.

[27] Kenneth Hoover and Todd Donovan, *The Elements of Social Scientific Thinking*, 9th ed. (Belmont, CA: Wadsworth Publishing Company, 2008), 41.

[28] Peter Rossi, Howard Freeman, and Mark Lipsey, *Evaluation*, 6th ed. (Thousand Oaks, CA: Sage Publications, 1999), 128.

[29] Earl R. Babbie, *The Practice of Social Research*, 13th ed. (Belmont, CA: Wadsworth Publishing Company, 2013), 295.

of one AHIMT and interacting with all other AHIMTs in the Phoenix Urban Area. The following sections provide methodological descriptions of each of the data sources.

B. SOURCES OF DATA

1. The Phoenix Fire Department (PFD) Study

The Phoenix Fire Department (PFD) Senior Staff commissioned a survey to better understand how the AHIMT program it indirectly sponsored (by chairing the regional committee) was performing and especially how it collaborated with members of the other two teams in the Phoenix Urban Area. One issue of particular interest to the Phoenix Fire Department Senior Staff was the perception of benefits and costs of participation in the urban area and of collaboration with the different departments and teams. Social scientists refer to this type of data source as secondary data or in more recent years "other people's data;" that is, data collected by one person or agency (such as the U.S. Census) and used to address research questions not specific to the original data source itself.

Julian Simon (deceased), Professor, University of Maryland and Paul Burstein, Professor, University of Washington, indicated that the cost, time investment, and complexity of data collection make the use of "secondary sources" important in social science research, estimating that in 1985, if one includes the U.S. Census as a source, nearly three-quarters of social science research includes "other people's data."[30] These significant advantages of using secondary data are accompanied by challenges as well. First, a researcher may have to search thoroughly and for some time to locate a data set relevant to the desired research question. Second, since someone else constructed the questionnaire, the wording may not always be optimal for the secondary study, requiring that the researcher carefully list questions verbatim so that readers are

[30] Julian L. Simon and Paul Burstein, *Basic Research Methods in Social Science*, 1st ed. (New York: McGraw-Hill, 1985), 184.

clear about what is actually being analyzed. Finally, since the secondary researcher did not design the original study, care must be taken to specify the details of the study so that readers may draw informed conclusions about the applicability and relevance of the data[31].

To understand the PFD Study, the first question to be addressed is "what was the population and by what technique were study participants selected"? The desired or "target" population for the PFD Study were the command officers (both fire and police departments) involved in the AHIMTs in the Phoenix Urban Area with an emphasis on those involved in the Phoenix AHIMT. It is important to note that the Phoenix Urban Area AHIMTs have developed and operated over several years and that the command officers assigned to them have been fluid, although the same core of people across departments have stayed with the program. Thus, the PFD Study used all command officers from all AHIMTs who were present during calendar year 2012 as a target population definition.

While many methods were available to reach this population, the PFD Study chose an Internet-based questionnaire containing 19 questions (the questionnaire is attached as Appendix A and the data is attached as Appendix B) administered to all members of the population; this technique is correctly labeled a "census." A census, inviting all members of the population to participate in the study, was selected because the PFD Study designers felt there were a relatively small number, 24 people, of total population members. A survey sampling strategy would have entailed as much effort and cost as a census and still introduced statistical problems with external validity,[32] so from a technical perspective the choice of a census was correct.

The data set for the PFD Study contains questionnaire responses from 16 individuals. The concept of completion rate is meaningful and can be interpreted

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[31] Norman K. Denzin and Yvonna S. Lincoln, *Handbook of Qualitative Research*, 1st ed. (Thousand Oaks, California: Sage Publications, 1994), 56.

[32] Babbie, The Practice of Social Research, 253.

as a statistical measure of connectedness between a sample and a target population for sample surveys, but there is no corresponding concept for censuses.[33] In a census, all members of the population are selected for study and the researcher is expected to make every effort to obtain a completed questionnaire from each of the 24 command officers. In this case, 16 people complied, while eight did not; two-thirds (66.7 percent) of the selected population is represented in the database.

In analyzing a census completion rate, the objective is to determine if there appears to be any systematic self-selection of those who did not respond to the questionnaire.[34] The information from the PFD Study indicates there is little distinction between those who completed the questionnaire and those who did not. The non-respondents are from different cities, different departments, and different units. Thus, no single city, department, or unit contributed an unusually large number of non-respondents; it appears that non-respondents came evenly from across the Phoenix Urban Area AHIMT system, thereby indicating no systematic bias stemming from their absence.

It is important to elaborate a qualification regarding the purpose for which the data are used when we try to specify what population the respondents in the PFD Study represent. The population used in the PFD Study represents two-thirds of the command officers operating in the AHIMT system for calendar year 2012. There appear to be no systematic biases, such as membership in a particular city, department or unit assignment, which are related to people's choice to not complete a questionnaire. But it remains that this is two-thirds of the population, not the entire population. If the goal of this thesis was to make statistical estimates of the beliefs of the command officers in the Phoenix Urban

[33] Babbie, Survey Research Methods, 37.

[34] Babbie, The Practice of Social Research, 459.

Area AHIMT program, the 66.7 percent completion rate would serve as an effective basis for estimation.[35]

However, the goal of the thesis focuses upon the substance of opinions expressed by command officers in general toward collaboration including its causes and consequences. In this case, the PFD Study data show how one group of command officers assesses collaboration, the data form one part of a larger case study with other sources of information and as such serve as information that points toward understanding what variables are related to success in collaboration.[36]

The measurement techniques used in the PFD Study are compatible with those used in the social science literature on collaboration.[37] The use of an Internet-based questionnaire also is a "state-of-the-art" data collection technique.[38] To insure that it is clear what variable is being examined from the PFD Study, each analysis presented in Chapter V lists the verbatim questions being used from the data set. In this way, readers have the same information as the thesis author and can critically examine all results and interpretations. The analyses used in the thesis are completely independent of the PFD Study, since the thesis author examining the original data set used the Statistical Package for the Social Sciences to evaluate the data (see Appendix B).[39]

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[35] Pamela L. Alreck and Robert B. Settle, *The Survey Research Handbook*, 2nd ed. (Homewood, IL: Irwin, 1985), 361.

[36] Michael Patton, *Qualitative Research and Evaluation Methods*, 3rd ed. (Thousand Oaks, CA: Sage Publications, 2002), 193.

[37] Joris Knoben and Leon A. G. Oerlemans, "Proximity and Inter-organizational Collaboration: A Literature Review," *International Journal of Management Reviews* 8, no. 2 (May 2006): 71–89.

[38] Edward P. Kardas and Tommy Milford, *Using the Internet for Social Science Research and Practice*, 1st ed. (Belmont, CA: Wadsworth Publishing Company, 1996), 39.

[39] Andy Field, Discovering Statistics Using SPSS for Windows: Advanced Techniques for the Beginner, 1st ed. (Thousand Oaks, CA: Sage Publications, 2000).

2. Data from Documents

Dr. Robert Yin argues that the central core of information for nearly every case study comes from documents.[40] For the purposes of this thesis, documents are contained in two broad categories. The first category is the most common: the professional and technical literature associated with the concepts examined in the detailed research questions examined in Chapter V. These concepts include collaboration, leadership, mission success, resource sharing, team development, organizational environments, and agency size. This academic and applied research literature is used to place potential findings into context of other studies and to enhance and guide interpretations of the results of the analysis of all sources of data used in the collaboration case study.

The second category of documents used in this case study is organizational (team, department, city, or other government) reports. Such documents permit the construction of a picture of the AHIMT system over time and across specific command officers and other staff. Some reports also can be used to assess resource levels, team performance, system priorities, and other issues that impinge on the development of the AHIMTs. The following listing shows the principal reports used in this study:

1. 2010 Quadrennial Homeland Security Review Report: A Strategic Framework for a Secure Homeland;[41]
2. 2008 National Response Framework;[42]
3. Central Region AHIMT Committee meeting records;
4. State homeland security grant workbooks;
5. AHIMT training records; and
6. records of AHIMT training classes.

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[40] Yin, Case Study Research Design and Methods, 101.

[41] United States Department of Homeland Security, *Quadrennial Homeland Security Review Report*.

[42] United States Department of Homeland Security, *National Response Framework*, 10.

For use in case studies, the academic literature and reports have the distinct advantage that books and journal articles are subject to peer review prior to publication and reports are subject to scrutiny not only by individuals involved in the work but also auditors and other officials. Furthermore, multiple reports addressing the same team, system, or event can be triangulated to provide multiple perspectives that enhance accuracy.[43]

3. Data from Observations

Dr. Sharon Caudle argues that case study design is also flexible enough to accommodate the use of semi-structured observation and interviewing as a source of information.[44] In the collaboration case study, observation and personal interviews form only about 10 percent of the total information but remain an important data source. The subjects for observation and interview include team members and leaders operating within the Phoenix Urban Area AHIMT system. The author of this thesis conducted all observations and interviews used here.

The use of this information is exclusively to provide context for data from the PFD Study of the AHIMTs; it is not treated as a completely separate database able to sustain interpretations and conclusions on its own. In social science research, when an observer actively watches the action in his/her environment for later use as data or information about the environment of elements of the environment, it is known as participant observation.[45] The results of such observation come from the selection, recording, and encoding of behavior and events. Thus, selection means that the observer identifies, at least broadly, the objects of observation (for example, discussions of "benefits of

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[43]Kimberly Neuendorf, *The Content Analysis Guidebook*, 1st ed. (Thousand Oaks, CA: Sage Publications, 2002), 49.

[44] Sharon Caudle, *Handbook of Practical Program Evaluation: Using Qualitative Approaches*, 1st ed. (San Francisco, CA: Jossey Bass Publishers, 1994).

[45] Kathleen M. DeWalt and Billie R. DeWalt, *Participant Observation: A Guide for Fieldworkers*, 2nd ed. (Lanham, MD: AltaMira Press, 2010), 39.

collaboration") before initiating work. Recording means that records are made and kept of all observations (usually in the form of field notes or some other technique such as digital recording). Encoding means that the records are reviewed and simplified with the aim of systematizing the information. For the collaboration case study, all three of the components of systematic observation defined above were used; encoding took place largely as field notes.

Typically, in a case study, according to Professor Barbara Kawulich, at the University of West Georgia in Carrollton, Georgia, observations lead the researcher to form questions that are aimed at clarifying what has been seen and heard and these questions are either asked at the time the observations are being made or assembled into a semi-structured interview to be administered later.[46] In this latter instance, the interview is completely informal and may take the form of a single question, asked of a single individual, or multiple questions asked of one or more people.[47] Both of these techniques were used in the collaboration case study; a handful of short semi-structured interviews composed exclusively of open-ended questions were devised and asked by the thesis author. No written questionnaires were used in this phase of the research. This emphasizes that these interviews were asked in the context of the teams and the AHIMT system; the verbal questions were meant to clarify actions observed or clarify conversations overheard. A log in the form of field notes was kept of questions posed and answers given.

C. LIMITATIONS OF THE THESIS STUDY

All research has limitations; the guide to responsible research is to make the reader aware of the limitations. Case studies have many advantages, including the ability to bring many different sources of data to bear on the research questions, not being tied exclusively to the present (data from the past

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[46] Barbara Kawulich, "Participant Observation as a Data Collection Method," *Qualitative Social Research* 6, no. 2 (May 2005): 128.

[47] Herbert J. Rubin and Irene S. Rubin, *Qualitative Interviewing: The Art of Hearing Data*, 3rd ed. (Thousand Oaks, CA: Sage Publications, 2012), 148.

can be used to develop timelines and context) and they are flexible in that they permit the combination of qualitative and quantitative data.[48] Three potential limitations in the present study demand mention.

The PFD Study is a census of participants in the Phoenix Urban Area AHIMT system from 2008 through calendar year 2012. Of the 24 individuals identified as the population, 16 (two-thirds) completed a questionnaire. Only limited analysis of those who did not respond was possible; that is, they were not predominately drawn from any single team, department, or city. It is not likely, but is at least possible, that those who did not respond represented information that was important but not captured by the PFD Study.

Furthermore, as with all cases of using "other people's data," the topics addressed in the questionnaire and the specific wording of the questions came from the PFD Study designers and consequently not from the thesis author. It is possible that if the thesis author had the option to create unique questions, the results of the PFD Study will have more adequately addressed the research questions posed in the collaboration case study. The opinions and recommendations listed by the thesis author, as a founding member of the Central Region AHIMT Committee, may reflect personal bias.[49] Finally, although the observational data reported in the case study are used only to supplement other data, all observed and interview data are open to biases arising from differing administration and wording between those being questioned and observed. In this case attempts were made to minimize such variance by using a single observer and questioner (the thesis author).

[48] Yin, Case Study Research Design and Methods, 18–19.

[49] Ibid., 102.

III. LITERATURE REVIEW

A. PRIOR RESEARCH

This review focuses on the available literature regarding collaborative processes, primarily between governmental agencies, and the establishment of functioning all hazard incident management teams (AHIMT). Collaboration in government is well documented within the social sciences and the study of organizational theory.[50] The search yielded significant scholarly literature on the benefits and disadvantages of collaborative processes.

Academic research specific to collaborative processes in establishing, training, and equipping AHIMTs is non-existent. Thus, application of general concepts in governmental collaboration becomes necessary for the process of establishing multijurisdictional and multiagency AHIMT. The available documentation on AHIMT is descriptive in the context of capabilities and supportive of the need for existence of IMTs. Documentation is limited to United States governmental agency publications, trade and government journal articles, policies of existing AHIMT programs, and Presidential decision directives that support utilizing IMT during large-scale incidents. Research papers are available on AHIMT through the National Fire Academy Executive Fire Officer (EFO) program. The EFO research papers discuss the necessity and justification for establishing AHIMT in a variety of communities throughout the country. This review breaks the total literature into three categories: What is collaboration, overview of the AHIMT program, and why it is important for AHIMT teams to collaborate.

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[50] Sheryl Jardine, "Impact of Incentives and Requirements of Group Collaboration" (master's thesis, Naval Postgraduate School, Monterey, CA, 2010), 3, retrieved May 17, 2012 from http://www.nps.edu.Library/index.aspx.

B. WHAT IS COLLABORATION?

1. Definitions

The literature reveals several definitions for partnerships, collaboration, cooperation, and coordination. Dr. Sharon Caudle, assistant director with the U.S. Government Accountability Office's Homeland Security and Justice Team Agencies, utilizes the National Academy of Public Administration's (NAPA) definition of partnership "as a mutually-beneficial and reciprocal relationship where entities share responsibilities, authority, and accountability for results."[51] NAPA defines collaboration as "joint work effort with shared responsibilities for mutually defined goals."[52] According to NAPA, the terms "partnership" and "collaborative" are mistakenly used interchangeably, with researchers contributing to the issue by utilizing the terms synonymously. This ultimately proves confusing and conflicting when organizations are describing relationships. NAPA posits that governmental agencies can enter into five levels of relationships based on phases of development, which listed in increasing order of commitment, includes: cooperatives; contracts/grants; collaborations; partnerships, and high-performance partnerships. NAPA uses the term "high-performance partnership" to describe a partnership that "achieves goals and outcomes that are meaningful and could not be reached by an individual partner alone."[53]

Sheryl Jardine, in a thesis for the Center for Homeland Defense and Security (CHDS), argues there is a difference between collaboration and cooperation. To support her contention, Jardine refers to Gray's (1989)

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[51] Sharon Caudle, "Basic Practices Aiding High-performance Homeland Security Regional Partnerships" (master's thesis, Naval Postgraduate School, Monterey, CA, 2006), 4, Defense Technical Information Center, retrieved July 17, 2012, from http://oai.dtic.mil/oai/oai?verb=getRecord&metadataPrefix=html&identifier=ADA484113.

[52] National Academy of Public Administration, *Powering the Future: High Performance Partnerships* (Washington, DC: National Academy of Public Administration, 2003), 13, retrieved October 17, 2012, from www.napawash.org/wp-content/uploads/2011/02/03_03.pdf.

[53] Ibid., 13–14.

distinction between the two terms. Gray defines collaboration "as requiring the interdependence of the stakeholders, the ability to address differences constructively, joint ownership of decisions, and collective responsibility for the future of the partnership." Cooperation is constant and does not evolve to address other problems, whereas "collaboration is a dynamic and emergent process."[54] In this context, Gray appears to argue that a partnership must exist for collaboration to occur, which is inconsistent with the NAPA definition.

Dr. Rosemary O'Leary, professor of strategic management and leadership at the Maxwell School of Syracuse University, and Nidhi Vij, Ph.D. candidate in public administration at the Maxwell School, adopted the following definitions from Agranoff and McGuire (2003):[55]

> Collaborative public management is a concept that describes the process of facilitating and operating in multi-organizational arrangements to solve problems that cannot be solved or easily solved by single organizations. Collaborative means to co-labor, to achieve common goals, often working across boundaries and in multi-sector and multi-actor relationships. Collaboration is based on the value of reciprocity and can include the public.

Naval Postgraduate School (NPS) Business Professors Thomas, Hocevar, and Jansen define collaborative capacity "as the ability of organizations to enter into, develop, and sustain Interorganizational systems in pursuit of collective outcomes."[56] The United States Government Accountability Office (GAO) defines collaboration as "…broadly defined as any joint activity that is intended to

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[54] Jardine, "Impact of Incentives and Requirements of Group Collaboration," 7–8.

[55] Rosemary O'Leary and Nidhi Vij, "Collaborative Public Management: Where Have We Been and Where Are We Going?," *The American Review of Public Administration* (2012): 2, doi:10.1177/0275074012445780.

[56] Gail F. Thomas, Susan Hocevar, and Erik Jansen, *A Diagnostic Approach to Building Collaborative Capacity in an Interagency Context* (Monterey, CA: Naval Postgraduate School, 2006), 3.

produce more public value than could be produced when the organizations act alone."[57]

As previously noted, the NAPA contends that multiple definitions and the use of terms as though they were synonymous create confusion for research. Furthermore, NAPA argues that in collaborative processes "partners retain their individual autonomy, decision-making, and accountability mechanisms. In other words, there is no change in the organizational infrastructure," whereas in a partnership, reciprocity is fundamental with "a shared infrastructure and decision-making apparatus."[58] In this context, each member agency of the Central Region AHIMT Committee maintained individual autonomy and decision-making; consequently, collaboration is an accurate description of the process used to establish the Phoenix Urban Area AHIMT program.

The definition adopted from Professor O'Leary and Vij characterizes collaboration "based on the value of reciprocity and can include the public," which is consistent with the NAPA definition for a partnership. Defining and measuring what the value of reciprocity in an objective manner is a challenging prospect. As this relates to the Central Region AHIMT Committee, reciprocity in both Professor O'Leary's and NAPA's definition infers equal contribution of effort and time by each member agency. Individuals represent agencies; thus, the degree of effort invested or time commitment is a function of knowledge, skills, and experiences of the individuals that participate which is a subjective measurement. Professors Thomas, Hocevar, and Jansen's description of collaborative capacity does not describe what a collective outcome is and the GAO definition is equally vague in accepting "any joint activity that is intended to produce more public value" without qualitative or quantitative measure.

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[57] United States Government Accountability Office, *Results-Oriented Government: Practices That Can Help Enhance and Sustain Collaboration among Federal Agencies* (Washington, DC: United States Government Accountability Office, 2005), 1.

[58] National Academy of Public Administration, *Powering the Future*, 14.

Of the five definitions of collaboration presented above, Gray's definition, "requiring the interdependence of the stakeholders, the ability to address differences constructively, joint ownership of decisions, and collective responsibility for the future of the partnership"[59] is the most descriptive of the processes and principles associated with Central Region AHIMT Committee. Each member agency requires the assistance of other agencies to meet the challenges of establishing a long-term program, which includes joint decisions (AHIMT location, training, equipment, etc.), and the member agencies recognize their responsibilities to sustain the group to ensure the continuation of the AHIMT program. Therefore, for purposes of this thesis, Gray's definition provides the best description of the efforts to develop three AHIMT in the Phoenix Urban Area.

2. Benefits of Collaborative Processes

Both scholars and practitioners appear to agree on numerous benefits gained from collaborative processes. The first benefit of collaborative processes within multijurisdictional emergency response agencies is that it provides a framework for identifying problems and examining solutions before the occurrence of a large-scale incident. In a 2010 paper, University of South Florida Professors Susan MacManus and Kiki Caruson cite several authors in concluding "local 'cross-sector' collaboration" is essential in dealing with serious, life-threatening, highly complex situations."[60] Collaborative processes allow for shared authority, as well as defusing responsibility and distributing scarce resources over a large area.[61]

Another benefit of collaboration, according to O'Leary and Vij, is "…public managers often find themselves facilitating and operating in multi-organizational arrangements to solve problems that cannot be solved, or solved easily, by

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[59] Jardine, "Impact of Incentives and Requirements of Group Collaboration," 7–8.

[60] Susan A. MacManus and Kiki Caruson, "Emergency Management: Gauging the Extensiveness and Quality of Public-and Private-Sector Collaboration at the Local Level," *Urban Affairs Review* 47, no. 2 (2010): 282, DOI: 10.1177/1078087410362050.

[61] Ibid.

single organizations."[62] Thus, collaborative processes offer organizations a methodology to address challenges that are larger than an individual organization can manage. Other benefits of collaboration include outsourcing; new ways to improve publicly funded programs; technology improvements allow government agencies to share information that is integrative and interoperable; and citizens are looking to engage governance, which can result in new forms of collaborative problem solving.[63] A simple rationale for individuals to participate in collaboration is captured in the idea that "the primary reason to collaborate is… you think you can create something better than if you did it yourself."[64]

Collaboration provides an operative framework within which participating agencies find agreement on resolution, which enhances "ownership" and commitment to the regional performance management efforts.[65] Thomas, Hocevar, and Jansen cite William Pelfrey, Professor, Virginia Commonwealth University, as saying "collaboration and information sharing are the two most essential approaches to prevention…collaboration requires collegiality, trust, flexibility, openness, mutual respect, social capital, and pathways of communication."[66] Furthermore, in 2007, the Science Applications International Corporation conducted a study on collaboration in transportation networks for the Department of Transportation. The authors of the report found tangible benefits through public safety collaboration and by sharing of resources and eliminating redundancies.[67]

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[62] O'Leary and Vij, "Collaborative Public Management," 3.

[63] Ibid.

[64] Ibid., 4.

[65] Caudle, "Basic Practices Aiding High-performance Homeland Security Regional Partnerships," 9.

[66] Thomas, Hocevar, and Jansen, A Diagnostic Approach to Building Collaborative Capacity, 5.

[67] Jocelyn Bauer, Michael Smith, and April Armstrong, *The Collaborative Advantage Realizing the Tangible Benefits of Regional Transportation Operations Collaboration* (Washington, DC: United States Department of Transportation, 2007), 1–2, retrieved June 24, 2012, http://ops.fhwa.dot.gov/publications/benefits_guide/index.htm.

To successfully collaborate, participants must have the ability to understand the perspective of others.[68] Through literature review and empirical research, NPS Professors Jansen, Hocevar, Rendon, and Thomas propose enabling factors and barriers to collaboration. They adapt Galbraith's open systems model for organizations into the inter-organizational collaborative capacity (ICC) model and present it as a methodology to determine an organization's capacity for collaboration. The ICC model is a holistic approach and factors in "strategy and purpose, organizational structure, reward systems, people, and lateral processes."[69]

3. Drawbacks to Collaboration

According to Hocevar, Jansen, and Thomas:

> …studies about the need to collaborate have been the most prevalent. Less prevalent are studies about the "how" of collaboration. To address the 'how' of collaboration, we wanted to better understand the enablers and barriers to effective inter-agency collaboration.[70]

As mentioned previously, the inter-organizational collaborative capacity (ICC) model provides a system for examining an organization's capacity for collaboration. The three available articles from these authors utilize only two organizations in one study and three in the other two studies. Thus, it is unclear if the ICC model is applicable to more than three organizations working collaboratively together.

In her CHDS thesis paper, Jardine hypothesizes that a reduction or elimination of Department of Homeland Security (DHS) Urban Area Security Initiative (UASI) grant funds would cause major urban areas, also referred to as

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[68] MacManus and Caruson, "Emergency Management," 282.

[69] Erik Jansen, Susan P. Hocevar, Rene G. Rendon, and Gail F. Thomas, "Interorganizational Collaborative Capacity: Development of a Database to Refine Instrumentation and Explore Patterns, *Acquisition Sponsored Research Report Series* (Monterey, CA: Naval Postgraduate School, 2008), 5.

[70] Hocevar, Jansen, and Thomas, "Inter-Organizational Collaboration," 1.

Urban Area Working Groups (UAWG), to cease to participate in collaborative efforts relating to prevention and preparedness activities.[71] She conducted a survey of an UAWG users group to gather empirical data and utilized Hocevar, Jansen, and Thomas's ICC model to evaluate collaborative capacity within the UAWG users group.[72] Her data analysis supports the conclusion that collaboration of UAWG is the result of meeting the requirements of the UASI grant guidance as opposed to a commitment to collaborative processes. Jardine argues that it is unknown whether a reduction or elimination of DHS grants funding levels would have an impact on collaborative processes within major UAWG regions.[73] In her conclusion, Jardine acknowledges that 76 percent of the respondents to her survey would continue to collaborate to resolve problems even if grant funding is eliminated.[74] The inconsistency in the assessment presents a challenge for anticipating the future of collaborative processes in UAWG.

American psychologist and 2002 Nobel Prize winner in economic sciences, Daniel Kahneman describes a "system 1 response" of the mind as the capacity to react rapidly to situations without deep thought or reflection.[75] A "system 1 response" benefit of collaboration, as defined by Kahneman, would suggest the collaborative processes are a cultural norm in government, but this is not the case.[76] According to the National Academy of Public Administration, initiating a collaborative process is not a simple task.[77] Agencies often value the culture of autonomy over collaboration. Therefore, to collaborate with other

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[71] Jardine, "Impact of Incentives and Requirements of Group Collaboration," 69.

[72] Ibid.

[73] Ibid.

[74] Ibid., 81.

[75] Daniel Kahneman, *Thinking, Fast and Slow*, 1st ed. (New York: Farrar, Straus and Giroux, 2011), 20.

[76] Ibid.

[77] National Academy of Public Administration, *Powering the Future*, 20.

agencies, an organization needs to justify a benefit before committing resources and time to the process.[78]

Donald F. Kettl, the Dean of the School of Public Policy at the University of Maryland, contends that coordination at all levels of government, including intra-government at a local level is necessary for proper management of large-scale incidents. In his argument, Kettl declares most communities unable to respond effectively to a significant terrorist incident. A large-scale incident provides a shock to the capabilities of the community and to "the level of coordination it can marshal."[79] Therefore, coordination of resources through a planning process that occurs before a disaster happens will determine the outcome of the incident.[80] As an example, Kettl contends that lack of coordination potentially resulted in a more significant loss of firefighter lives at the World Trade Center.[81] Kettl and other authors argue that collaborative processes are necessary to improve efficiencies for all levels of government in combating terrorism.

In 2006, Dr. Sharon Caudle noted that the 2003 *Homeland Security Presidential Directive 8* mandates the assessment of measurable priorities, including regional collaboration.[82] Furthermore, the Federal Emergency Management Agency (FEMA) developed department and agency guidance to assess "how regional collaboration builds national preparedness capabilities," yet FEMA has not established the measures to do so.[83]

Between 2003 and 2009, Congress allocated approximately $5 billion dollars to UASI programs nationwide. As of 2009, FEMA had still failed to

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[78] Ibid., 78.

[79] Donald F. Kettl, *System under Stress: Homeland Security and American Politics*, 1st ed. (Washington, DC: CQ Press, 2007), 33.

[80] Ibid.

[81] Ibid., 35.

[82] Caudle, *Basic Practices Aiding High-performance Homeland Security Regional Partnerships*, 16.

[83] Ibid.

develop or put measures in place to assess whether the UASI program had achieved the goal to build regional preparedness through collaboration efforts.[84] The Government Accountability Office (GAO) concludes:

> In addition, none of FEMA's other strategies, guidance, and policies, such as FEMA's Grant Programs Directorate Strategy for 2009 - 2011 and FEMA's agency wide strategy for 2008 - 2013 provide output or outcome measures to assess the effect of UASI regions' collaborative efforts on preparedness capabilities.[85]

A matrix to examine the performance of collaborative processes remains an unavailable, but still essential, component for justifying partnerships in all levels of government.

4. Collaboration in Government

Collaborative processes have long been valued and pursued at all levels of government. Hocevar, Jansen, and Thomas, state that much literature is available regarding the need and justification for continued intra-agency collaborative efforts.[86] Moreover, Caudle calls attention to the fact that in 2006, the Department of Homeland Security (DHS) made regional collaboration a requirement for homeland security grant awards. DHS developed three measurable benchmarks for implementation of regional collaborative processes. The first benchmark called for signed mutual aid agreements between cities and states to provide for personnel and equipment during emergencies. The second benchmark required the signatories of the mutual agreements to participate in exercises that determine capability gaps and familiarize officials with available

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[84] United States Government Accountability Office, Urban Area Security Initiative: FEMA Lacks Measures to Assess How Regional Collaboration Efforts Build Preparedness Capabilities (Washington, DC: United States Government Accountability Office, 2009, 17.

[85] Ibid., 17–18.

[86] Hocevar, Jansen, and Thomas, "Inter-Organizational Collaboration," 1.

resources. The third benchmark provided regional coordination and planning to avoid duplication and inconsistencies in resources.[87]

Review of several federal documents reveals a common theme of support for and benefits of collaboration between federal agencies, and federal agencies and state and local governments. The *2007 National Preparedness Guidelines*, published by DHS, outlines the commitment to collaboration in Goal 4.1. The discussion provides insight to the criticality of improving preparedness activities for major events through regional collaborative processes.[88] The analysis of the need for increased and extensive collaboration includes prevention, protection, response, and recovery activities.[89]

Furthermore, the GAO has written numerous reports outlining the benefits of coordination and collaboration for all levels of government. In April 1998, the GAO urged government agencies at all levels to strive to improve coordination and collaboration; the need was seen as "paramount."[90] Then in October 1998, the GAO published a report evaluating the implementation of the *Nunn-Lugar-Domenici Act* by the Department of Health and Human Services (DHHS).[91] In this report, the GAO addresses the fact that DHHS had not used a federal-city collaborative process in making risk assessments.[92] In 2005, the GAO critically reported that a lack of compatibility in "standards, policies, procedures, and data

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[87] Caudle, "Basic Practices Aiding High-performance Homeland Security Regional Partnerships," 1.

[88] United States Department of Homeland Security, "2007 National Preparedness Guidelines," September 2007, 12, www.fema.gov/pdf/.../nrf/National_Preparedness_Guidelines.pdf.

[89] Ibid. Access date June 20, 2012

[90] United States Government Accountability Office, *Combating Terrorism: Observations on Crosscutting Issues* (Washington, DC: United States Government Accountability Office, 1998), 1.

[91] Ibid.

[92] United States Government Accountability Office, *Combating Terrorism: Observations on the Nunn-Lugar-Domenici Domestic Preparedness Program* (Washington, DC: United States Government Accountability Office, 1998), 3.

systems" prevents true collaborative processes from occurring in many governmental agencies.[93]

In 2007, the Homeland Security Coordinating Council (HSCC) released the *National Strategy for Homeland Security*. A key strategy described in the document calls for the development of joint planning and training processes. In order to accomplish this strategy, the HSCC delineates that planning and training is a collaborative process for all levels government.[94] Furthermore, the report calls for planning to integrate coordination with private sector and non-profit partnerships. The resulting arrangement will "ensure we effectively bring to bear all instruments of national power in our response to an incident."[95]

5. Leadership in Collaboration

One of the domains identified by Hocevar, Jansen, and Thomas in their model of inter-organizational collaborative capacity (ICC) is "people."[96] According to their ICC model, all members of the collaborative group must possess individual capabilities to successfully collaborate, including "conflict management skills, willingness to engage in shared decision-making, respect for the expertise of those in other organizations, and knowledge and understanding of how other organizations work."[97]

Collaborative processes by definition are joint activities requiring the participation of more than one organization with the intention of producing public value as a common goal, which requires leadership to establish direction. Leadership in the collaborative setting will occur through assignment, also known

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[93] United States Government Accountability Office, *Results-Oriented Government*, 19.

[94] Homeland Security Coordinating Council, *National Strategy for Homeland Security* (Washington, DC: Homeland Security Coordinating Council, 2007), 33–34, United States Department of Homeland Security, retrieved June 23, 2012, from http://www.dhs.gov/xabout/history/gc_1193938363680.shtm.

[95] Homeland Security Coordinating Council, *National Strategy for Homeland Security*, 33–34.

[96] Hocevar, Jansen, and Thomas, "Inter-Organizational Collaboration," 3.

[97] Ibid.

as formal leadership, or by emerging from one or more members of the group, also known as informal leadership.[98] To achieve goals that produce public value, an effective leadership style requires "regional stewards" that encourage people to share in the vision, distribute power, connect differences, and create networks.[99] The leader of groups that accomplish goals must demonstrate integrity and credibility, welcome complexity and openly accept change.[100]

Western Michigan University Professor Peter Northouse's book, *Leadership, Theory and Practice,* identifies several theories about what leadership is, how leadership is measured, and personality characteristics associated with leaders. Northouse's work provides a compilation and summary of the commonalities and discrepancies between the numerous theories on leadership. Northouse argues the components of leadership that are consistent within all theories include:

> (a) leadership is a process, (b) leadership involves influence, (c) leadership occurs in groups, and (d) leadership involves common goals. Thus, he defines leadership "as a process whereby an individual influences a group of individuals to achieve a common goal.[101]

Professor Susan E. Kogler Hill, University of Denver, cites a study by Stagl, Salas, and Burke in 2007, that argues, "the totality of research evidence supports this assertion; team leadership is critical to achieving both affective and behaviorally based team outcomes."[102] The team leadership model contends that the role of a group leader is to monitor the team and take appropriate action when required to ensure team effectiveness. The team leadership model begins

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[98] Peter G. Northouse, *Leadership Theory and Practice*, 5th ed. (Thousand Oaks, CA: Sage Publications, 2010), 5–6.

[99] Matthew McKinney, John Parr, and Ethan Seltzer, "Working across Boundaries," *Land Lines* 16, no. 3 (2004): 6, Lincoln Institute of Land Policy, retrieved July 13, 2012, from http://www.lincolninst.edu/pubs/912_Working-Across-Boundaries.

[100] McKinney, Parr, and Seltzer, "Working Across Boundaries."

[101] Northouse, Leadership Theory and Practice, 3.

[102] Ibid., 242.

with the initial leadership decisions, progressing to actions of the leader, which allows the team leader to focus on the indicators of team effectiveness. From this context, the leader's initial mental model of the situation must incorporate the problem, "but also the environmental and organizational contingencies that define the larger context of team action."[103] Professor Hill underscores the importance of the collaborative process team leader with the following: *To be an effective leader, one needs to respond with the action that is required of the situation.*[104]

[103] Ibid., 243.

[104] Ibid., 249.

IV. AN OVERVIEW OF THE ALL HAZARDS INCIDENT MANAGEMENT TEAM PROGRAM IN THE PHOENIX URBAN AREA

Scholarly analysis of collaboration in the context of incident management teams has thus far proved elusive and research was limited to descriptive accounts of capabilities. The body of scholarly work is clearly supportive of the need for existence of IMTs. Documents that present such descriptions and prescribe the need for IMTs include: United States governmental agency publications, trade and government journal articles, policies of existing AHIMT programs, and presidential decision directives that support utilizing IMTs during large-scale incidents. Research papers are available on AHIMT through the National Fire Academy Executive Fire Officer (EFO) program. However, the EFO research papers are limited to discussions on the necessity and justification of establishing AHIMT in a variety of communities throughout the country. Scholarly review of these sources is limited and its absence must be taken into consideration as an indicator of narrow review. Yet, the history of the development of incident management teams and the formation of the Phoenix Urban Area AHIMT program is instructive.

In the early 1960s, wild land fires in California led to the development of the Incident Command System and the National Interagency Fire Center for dispatching of federal resources to wildfires. Forest fires in the early 1970s resulted in the cooperative effort of six federal agencies and one association of state agencies to form the National Wildfire Coordinating Group (NWGC) for oversight of incident command teams and training. These efforts evolved into the development of incident management teams (IMT), which are broadly categorized into five levels, Types 1 through 5.[105]

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[105] Gary West, *Evaluating and Implementing the Incident Management Team Concept* (Washington, DC: Federal Emergency Management Agency, Learning Resource Center, 2006), 13, retrieved July 15, 2012, from https://www.hsdl.org/?abstract&did=682343.

A Type 1 team is the largest and most qualified of the five levels. A Type 1 team has between 35 and 50 members whose training is extensive and permits the broadest functionality. A Type 2 team has between 20 and 35 members with slightly less training and certifications than the larger team. A Type 3 is comprised of 10 to 20 members with training and certifications similar to a Type 2 team.[106] A Type 4 team is designed to manage incidents for a period of only six to 12 hours and then transfer functions over to a Type 3 team when needed. Members of a Type 4 team are local members of fire and law enforcement agencies. Type 5 teams are designed to serve smaller communities and are comprised of enough local fire and law enforcement members to establish the basic section level command functions of operations, logistics, planning, and finance.[107] Oversight for particularly large incidents is provided through area command teams or national incident management organization teams.[108] All of the initial IMT were developed in the wildfire arena with little thought or regard for providing incident command expertise to other types of disasters or special events.

The Phoenix Urban Area model for AHIMT, and the definition adopted for the purpose of this thesis, utilizes the United States Fire Administration classification for an AHIMT as:

> A multi-agency/multi-jurisdictional team for extended incidents formed and managed at the local, state, or tribal level. It is a designated team of trained personnel from different departments, organizations, agencies, and jurisdictions. Type 3 IMTs are deployed as a team of 10–20 trained personnel, representing multiple disciplines who manage major and/or complex incidents requiring a significant number of local, state, or tribal resources.[109]

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[106] McKay, "All-Hazards Type 3 Incident Management Teams Are Catching On."

[107] West, Evaluating and Implementing the Incident Management Team Concept, 13.

[108] Team Center, "IMT Center."

[109] United States Fire Administration and Federal Emergency Management Agency, "USFA Type 3 Incident Management Team,"

A. WHY AHIMTS WERE FORMED

The three AHIMTs in the Phoenix Urban Area began with a process that started in 2008. A consortium of 15 multijurisdictional fire and police departments, consisting of 24 people, convened at the Phoenix Fire Department's headquarters to discuss the formation of a collaborative Type 2 IMT. This group of command and executive level officers developed into the Central Region AHIMT Committee. As noted in the Introduction chapter of this thesis, one of the justifications for the initial concept of creating a Type 2 IMT included support for the Incident Support Team (IST) component of the Rapid Response Team (RRT) program. In 2002, a distinct multijurisdictional and multiagency collaborative process was used in the formation of both the IST and RRT program. The IST and RRT have specialized response capability for statewide and regional deployment to significant emergency incidents and large-scale special events.

The composition of an IST is 10 command level officers from Phoenix Urban Area fire departments and police departments; preferably the configuration includes five members from each discipline. The IST provides liaison between the local incident commander and the RRT, along with establishing internal RRT command functions. This model provides for a minimal capability in a unified manner for establishing the primary specific positions in the Incident Command System (ICS).

Each RRT is comprised of both firefighters and police officers that perform either jointly or independently at the tactical level. Both disciplines are specifically trained to respond in an all-hazards manner to both large-scale incidents (terrorism, hazardous materials releases, structural collapses, hostage situations, bomb threats, etc.) and special events throughout the state.

It was determined that a reasonable operational period for an IST to support an RRT deployment is 12 hours. Consequently, an IST does not provide an adequate sustainment and liaison system for more than one operational

period for a statewide or interstate deployment of one or more RRT. When an incident or event is forecast to require additional operational periods, the Phoenix Urban Area will assemble an AHIMT and deploy it to relieve the IST. The AHIMT will continue the process of providing both the functional command and control over the RRT and support for the local incident commander during either catastrophic incidents or special events.

1. How Teams are Funded, Equipped, Trained and Deployed

Several metropolitan Phoenix area communities incur considerable expense hosting special events each year and every jurisdiction has the potential for a significant disaster, including airliner crashes, release of hazardous or radioactive materials, and terrorist attacks. Thus, by collaboratively sharing resources through the development of three AHIMTs, costs are reduced, asset duplication is avoided, trust among agencies is enhanced, and experience in the application of the Incident Command System (ICS) is gained. As retired Phoenix Fire Department Fire Chief Alan Brunacini pointed out, an incident management system that is "not rehearsed will be difficult to implement" when needed.[110]

In 2008, initial funding efforts began for the three AHIMTs in the Phoenix Urban Area was sought from the Statewide Homeland Security Grant Program (SHSGP), administered by the Arizona Department of Homeland Security (AZDOHS). For each year since 2008, the thesis author has co-authored the AZDOHS project workbooks for AHIMT grant funding. A records search revealed that with the exception of one year, funding awards have varied from $200,000 to approximately $750,000. As of May 2013, over $1 million of SHSGP awards have been utilized by each AHIMT to develop an equipment cache of trucks, containers, and generators.

Multijurisdictional and multiagency collaboration transpired in determining what equipment is necessary to function as an AHIMT in the Phoenix Urban

[110] Ronald Perry, "Incident Management Systems in Disaster Management," *Disaster Prevention and Management* 12, no. 5 (2003): 405.

Area. There are no national standards for equipment, thus the selection of equipment was a group consensus of what would suffice “to get the work done.” Efforts are currently in progress to ensure that all three AHIMT have identical caches of equipment so that members have the capability to transition between teams without having to learn new or different equipment.

SHSGP awards have provided for implementation of the concept of utilizing containers that are transported via a truck chassis with two rails and a 60,000-pound lift capacity arm with an attached hook. The containers provide transport for each AHIMT’s complete allied equipment cache, mechanical service, cold storage, and two-room command offices. Flatbed type units allow for the transport of all-terrain vehicles, forklifts, and large generators. This concept of operations is prevalent in both the United States military and the European fire service.

Training and associated costs in the Phoenix Urban Area are funded through SHSGP and Urban Area Security Initiative grant awards. In 2006, the process of leveraging funding avenues for training developed with an initial SHSGP award of $390,000 to establish a program of National Incident Management System (NIMS) compliant training classes. Since 2006, the Phoenix Urban Area has hosted numerous FEMA-approved courses in the Incident Command System series, including 39 ICS 300 and ICS 400 courses, with over 975 personnel trained. The number of courses pertaining to the AHIMT program include: 15 O-305 courses, All Hazards Incident Management Team, with over 600 personnel trained; and 36 position specific courses that over 900 members of the Phoenix Urban Area have attended. These courses include: Command and General Staff; Incident Commander; Operations Section Chief; Planning Section Chief; Resource Unit Leader; Logistics Section Chief; and Finance Section Chief.[111]

[111] Bradley Johnston (NIMS training coordinator for Phoenix Fire Department), interview with author, June 5, 2013.

As of June 2013, only one of the Phoenix Urban Area AHIMT, the Central AHIMT, is fully functional and available for deployment. The Central AHIMT is comprised of members of the Phoenix Fire and Police Departments and has received two activations to emergency incidents. Low precipitation amounts in the winter and spring of 2008 resulted in extremely dry conditions throughout California. During the summer months of 2008, numerous wildfires occurred throughout northern and central California. In July 2008, the Central Team received a request from the Boise National Incident Management Team through the United States Forest Service to deploy to Redding, California to assist with managing resources while several wildfires were burning in the Whiskeytown [sic] National Park.[112]

In November 2012, following Hurricane Sandy, the Central Team was activated by a request through the interstate Emergency Management Assistance Compact (EMAC) to operate a logistical staging area (LSA) in Corona Queens, New York. The mission entailed managing and distribution of assets during recovery efforts in Lower Manhattan, Staten Island, and Queens.[113] The East Valley AHIMT has provided support for two marathons, two wild land fire exercises, and one United States Air Force mass casualty exercise. Both the East Valley and West Valley AHIMT lack credentialed members, which is problematic with respect to any meaningful activation beyond the Phoenix Urban Area. Assuming that credentialing of all members of the East Valley and West Valley AHIMT occurs, deployments will occur for both teams through the interstate EMAC, FEMA, Southwest Coordination Center (SWCC), or Arizona State Forester.

2. How Teams Interact with Their Organizational Environment

The Phoenix Urban Area AHIMT operational model requires close interaction between all participating agencies and individual members. Formal

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[112] Ibid.

[113] William Wickers, interview with author, June 4, 2013.

authority, agency, or rank cannot influence decisions and outcomes within an AHIMT. Successful integration of members of all ranks from police and fire agencies of different sizes requires acceptance of each member's capabilities with deference given to skill levels. To successfully collaborate on an AHIMT, participants must have the ability to understand the perspective of others.[114]

The three AHIMT were located geographically in the Phoenix Urban Area: one AHIMT was placed in the West Valley comprised of police and fire service members from six primary jurisdictions; the Central AHIMT is staffed by city of Phoenix employees from the police and fire departments; and the East Valley AHIMT composed of police and fire service from five municipalities with the addition of personnel from Arizona State University's Emergency Management and Police Departments.

The external environment includes interaction primarily with two state agencies, the Arizona State Forester (ASF) and the Arizona Division of Emergency Management (ADEM). In 2003, between both of these state agencies, a state incident management team (SIMT) was created at the Type 2 level; although staffing of the team creates what is referred to as a "short team."[115] As of June 2013, the SMIT has 27 positions filled, with an active roster of 45 personnel.[116] Staffing is primarily drawn from ADEM and ASF, but eight fire departments and the U.S. Forest Service also support the team. Requests for activation to assist with all-hazard responses of the SIMT are managed through the ASF. Wildfire deployments are routed through the SWCC to the ASF for notification of team members. The SIMT, as with all IMT, are mobilized in support of the National Response Framework Emergency Support Function Five.[117]

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[114] MacManus and Caruson, "Emergency Management," 282.

[115] Arizona Division of Emergency Management, "Arizona Division of Emergency Management: Operations Section," Arizona Division of Emergency Management, retrieved June 6, 2013, from http://www.dem.azdema.gov/operations/emresponse/aimt.html.

[116] Chuck McHugh (Arizona Incident Management Team), interview with author, June 6, 2013.

[117] Ibid.

In the future, the Phoenix Urban Area AHIMTs will begin to interact with the FEMA Incident Management Assistance Teams and Type 1 and Type 2 IMTs that are activated through the SWCC. The SWCC organizationally falls in the southwest area (SWA) and under the direction of the National Interagency Fire Center and the National Wildfire Coordinating Group (NWCG).

> The SWA is established to manage collaboratively wildland fire and other incident management activities throughout the States of Arizona and New Mexico, and the Federal units located in the western parts of Oklahoma and Texas to the 100th meridian. Primary cooperating Federal and State Agencies in the Southwest Area include the USDA Forest Service, USDI Bureau of Land Management, USDI National Park Service, USDI Bureau of Indian Affairs, USDI Fish and Wildlife Service, State of Arizona (Arizona State Land Department), and the State of New Mexico (Division of Forestry).[118]

B. WHY IT IS IMPORTANT FOR AHIMT TEAMS TO COLLABORATE

Measuring the success of the collaborative planning process of the AHIMT response requires review of the methods of communication between agencies. Fire Chief Tom Shannon, Scottsdale, Arizona, argues:

> …by establishing a cooperative and highly participative Super Bowl planning process, the majority of operational conflicts (whether cultural or technical) will be uncovered in a controlled way and lead toward more predictable performance outcomes.[119]

Shannon examined how a collaborative planning process before the Super Bowl led to predictable performance outcomes during the event.[120] An examination of the planning process for Super Bowl XLII discloses a cooperative

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[118] Southwest Coordination Center, "Southwest Coordination Center (SWCC)," last modified June 6, 2013, Southwest Coordination Center, retrieved June 6, 2013, from http://gacc.nifc.gov/swcc/admin/about/about.htm.

[119] Thomas Shannon, "Leveraging Successful Collaborative Processes to Improve Performance Outcomes in Large-Scale Event Planning: Super Bowl, a Planned Homeland Security Event" (master's thesis, Naval Postgraduate School, Monterey, CA, 2010), v, Defense Technical Information Center, retrieved August 12, 2013, from http://oai.dtic.mil/oai/oai?verb=getRecord&metadataPrefix=html&identifier=ADA518698.

[120] Ibid., 8.

and participative system that uncovered operational conflicts and procedures in a controlled manner before the event. This allows for resolution, predictable performance outcomes, and operational cost reduction by elimination of barriers between multijurisdictional agencies, thus avoiding redundancy in technically skilled personnel. This process subsequently puts in place relationships prior to the unplanned disaster at a later date.[121]

Collaborative processes can reduce liability, offer cost savings through smart practices and "innovation resulting from the cross-pollination of ideas and recombination of scarce resources."[122] Single agencies seldom have the resources to effectively manage a large-scale disaster and maintain normal service delivery. Therefore, external resources are often necessary to ensure preservation of the service delivery model.[123] Collaborative planning efforts, before a disaster occurs, can reduce harmful effects and minimize disruption for a region in the event of a large-scale incident.

Because of these types of large-scale incidents and special events, support calling for the development of IMT found its way into several governing doctrines. The purpose statement of *Homeland Security Presidential Decision 5* reads, "To enhance the ability of the United States to manage domestic incidents by establishing a single, comprehensive national incident management system."[124] Additionally, the *2007 National Homeland Security Strategy* mentions the importance of IMT in implementing the National Incident Management System (NIMS).[125] The *2010 Quadrennial Security Review Report* in Goal 5.3 states "When an incident occurs that is beyond local response capabilities,

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[121] Ibid., 9.

[122] Jansen et al., "Interorganizational Collaborative Capacity," 1–2.

[123] Christopher Bellavita, "Changing Homeland Security: What Is Homeland Security?," *Homeland Security Affairs* 4, no. 2 (2008): 13–14.

[124] United States Government Printing Office, "Homeland Security Presidential Directive 5," 280.

[125] Homeland Security Coordinating Council, *National Strategy for Homeland Security*.

communities must be able to obtain assistance from neighboring jurisdictions and regional partners quickly, making a robust regional capacity vital to effective emergency response. Moreover, Goal 1.3 clarifies the need for protecting "…government leaders, facilities, and special events."[126] A functioning AHIMT can provide the various command functions within the Incident Command System (ICS) as mandated by the *National Response Framework*.[127] Thus, an effective collaborative process is essential for establishing and sustaining a successful AHIMT program.

[126] United States Department of Homeland Security, *Quadrennial Homeland Security Review Report*, 62.

[127] United States Department of Homeland Security, *National Response Framework*, 10.

V. ANALYSIS

A. INTRODUCTION

This chapter re-analyzes the data (Appendix B) from the PFD Study (Appendix A) of the AHIMT command officers and uses both that information and documents and records and observations to address the specific questions reiterated below. The over-arching research question was how to better understand perceptions of multi-agency collaboration by key participants in all hazard incident management teams that operate across jurisdictions in the Phoenix Urban Area. In particular, the aim was to examine the use of collaboration among AHIMT's and document the extent to which leaders can encourage collaboration, the frequency with which it occurs, the perceived benefits of collaboration and the factors that are important in causing and maintaining collaboration among teams over time. To provide supporting evidence for conclusions and recommendations drawn in this research, the following specific research questions were developed from the Phoenix Fire Department questionnaire (PFD Study) and analyzed:

1. Do agency leaders emphasize collaboration, is it observed frequently and do members believe that benefits accrue from collaborating with other agencies?
2. Does mission success require collaboration and how are different potential benefits of collaboration perceived? How do participants rank the importance potential collaboration outcomes, such as resource sharing, reduced costs, better comprehension of outside agency missions, and creation of enhanced frameworks for problem solving?
3. Are agencies willing to invest in collaboration, even at costs to themselves? Is willingness to invest affected by the size of the agency or by the extent to which leaders emphasize the importance of collaboration?
4. How much collaboration characterizes the AHIMT in the greater Phoenix area? Has this collaboration been consistent over the years? Operationally, are agency members prepared to engage as members of collaborative organizations?

5. How does collaboration affect AHIMT performance? Is this perception of the importance of collaboration for performance affected by the stage of development of the individual agency AHIMT? Would the absence of collaboration among teams and jurisdictions in the greater Phoenix area affect aggregate preparedness?

Each research question will form a section in the discussion that follows. Since there are multiple sources of information for answering each question, the initial answer is derived from the *Phoenix Fire Department AHIMT Study* (PFD Study), followed by a summary of any information from research studies in the literature or official documents and concluded with information from observations made by the thesis author of the AHIMT interactions over time. The data from the PFD Study are largely quantitative (participant answers to questionnaires), while the records, research, interviews and observations form a qualitative information source.

B. QUESTION ONE, LEADERSHIP EMPHASIS ON COLLABORATION

1. The PFD Study

The first specific question asked was three-fold; if agency leaders emphasize collaboration, how often does it take place, and do participants see value in it. The PFD Study data (see Appendices A and B) indicate that most participants in the AHIMT program believe that their home agency leadership encourages collaboration. Table 1 shows that when given the statement “the leaders of my agency emphasize the benefits of multi-agency collaboration” none of the respondents “strongly disagreed” or “disagreed,” only one selected “somewhat disagree,” and none selected “neutral.” One person selected “somewhat agree,” while five (31.2 percent) reported, “agree” and nine persons (56.3 percent) concurred with “strongly agree.” These self-reports show strong support for the idea that leaders in the AHIMT agencies do emphasize collaboration.

With leadership support for collaboration, it is important to determine how often the AHIMT program participants observed it. The PFD Study participants

were asked to respond to the statement, “Multi-agency collaboration occurs frequently within my organization” (see Table 1). The majority of participants felt that collaboration was frequent. None “strongly disagreed” with the statement, 1 “disagreed” and none chose “somewhat disagree” or “neutral.” Two respondents each endorsed the categories of “somewhat agree” and “agree,” while 11 people (68.8 percent) reported that they “strongly agreed.” Thus, nearly all the respondents in the PFD Study believed that the leadership of their home organizations encouraged collaboration and that, indeed, they observed collaboration often taking place in their organizations.

There is also support in the PFD study for the contention that collaboration has benefits. Respondents were asked to indicate their level of agreement with the statement, “Members in my agency believe that collaboration with other organizations is beneficial.” Table 1 shows that there is again almost complete support among the participants: none endorsed “strongly disagree” or “disagree,” one person indicated that they “somewhat disagree” and none was “neutral.” One person indicated “somewhat disagree,” five (31.3 percent) reported “agree” and 9 (56.3 percent) “strongly agree.”

At least among participants from these agencies, leaders encourage collaboration, members see it happening, and it is also believed to be beneficial. To explore the extent to which these beliefs are correlated with one another, the response categories shown in Table 1 can be coded. Thus, by assigning the number 1 to the category of “strongly disagree” and continuously up to the number 7 for the category “strongly agree,” a scale is created that measures the degree of agreement with statements, moving from lowest (a score of 1) to highest (a score of 7). This coding practice has a long tradition in the social sciences and produces a scale with defined and approximately equal points (monotonically increasing) that is appropriate for analysis with statistics designed for ordinal and interval measures.[128]

[128] McKee McClendon, *Statistical Analysis in the Social Sciences*, 1st ed. (Independence, KY: Cengage Learning, 2004), 43.

Using this coding technique, the mean and standard deviations can be calculated for each of the three statements or scales examined above. Agreement with "leadership emphasizes collaboration" generates a mean score of 6.31 with a standard deviation of 1.07. This indicates that the mean or average rating by participants' lies slightly above category 6 ("agree") and that the ratings vary around that mean by approximately 1 category in each direction. Inspection of the frequency counts for this variable in Table 1 indicates these summary statistics are accurate. Similarly, agreement with the statement "collaboration occurs frequently" yields a mean of 6.31 (standard deviation = 1.3) and agreement with "collaboration is beneficial" also produces a mean score of 6.31 (standard deviation = 1.07). Collectively, these statistics suggest that the three distributions are very similar to one another, except that there is slightly more variation among ratings of "collaboration frequency" than the other two rating scales.

Pearson's product-moment correlation coefficient (r^2) offers a statistical measure of the association between two variables, each of which is measured as continuous categories as the coding system described above yields.[129] It is interpreted as a proportional reduction in error (PRE) statistic that reports the percent of variance in one variable that is explained (or accounted for) by the other variable. Correlational analysis shows that agreement "leadership emphasis on collaboration" shows an r^2 equal to 0.93 ($p < .05$) with agreement that "collaboration is frequent in my organization." This means that leadership emphasis explains 93 percent of the variance in collaboration frequency; a high magnitude, positive correlation. Similarly, leadership emphasis shows an $r^2 = 0.89$ ($p < .05$) with participant agreement with the claim that "collaboration is beneficial." Finally, agreement that "collaboration is frequent in my organization" produced an $r^2 = 0.89$ ($p < .05$) with agreement that "collaboration is beneficial."

[129] Joseph F. Healey, *Statistics: A Tool for Social Research*, 8th ed. (Belmont, CA: Wadsworth Publishing Company, 2009), 370.

It is customary to test Pearson's product-moment correlation coefficients for statistical significance, using the customary significance threshold of 0.05.[130]

In the case of nonprobability samples, such as the PFD Study used, significance (a probability value less than .05) indicates that taking into account the number of cases, the variance on each variable and the magnitude of the association, the relationship is statistically reliable and (within the magnitude of Type 1 error) replicable. All three of the correlation coefficients reported above are statistically significant. Thus, leadership emphasis on collaboration is highly positively correlated with both frequency with which collaboration is observed and the belief that it is beneficial.

Table 1. Agency Leadership Encourages Collaboration

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
Multi-agency Collaboration is frequent	0 (0.0%)	1 (6.25%)	0 (0.0%)	0 (0.0%)	2 (12.5%)	2 (12.5%)	11 (68.75%)
Leadership emphasizes collaboration	0 (0.0%)	0 (0.0%)	1 (6.25%)	0 (0.0%)	1 (6.25%)	5 (31.25%)	9 (56.25%)
Collaboration Is beneficial	0 (0.0%)	0 (0.0%)	1 (6.25%)	0 (0.0%)	1 (6.25%)	5 (31.25%)	9 (56.25%)

2. Literature and Observations

Leadership is critical for success in collaborative processes. Paul Williams, Senior Research Fellow in the National Centre for Public Policy at the University of Wales Swansea, defined an effective leader for collaboration as a "sovereign and charismatic leader, who enthuses firm and directive leadership, is sharply contrasted with a more facilitative and catalytic approach displayed by leaders in partnership arenas."[131] Finding people to fulfill leadership roles

[130] Raymond P. Cuzzort and James S. Vrettos, *The Elementary Forms of Statistical Reason* (New York: St. Martin's Press, 1996), 238.

[131] Paul Williams, "The Competent Boundary Spanner," *Public Administration* 80, no. 1 (2002): 112–113.

meeting Williams' definition in the Central Region AHIMT Committee is a key component and challenge for the overall success of the program.

Experience and skill levels in leadership vary within every organization. Regardless of which theory of leadership one subscribes to, certain characteristics are required for effective collaboration. The team leadership model suggests that effective team performance starts with a mental model of a situation that the leader constructs. A successful leader will recognize "the environmental and organizational contingencies that define the larger context of team action."[132] O'Leary and Vij argue that leadership skills have evolved overtime to include the ability to work in a network, which they refer to as enablement skills.[133] They contend that the required skills for successful collaboration:

> …bring people together, to engage partners horizontally, and to bring multiple collaborators together for a common end in a situation of interdependence. Examples include negotiation, facilitation, collaborative problem solving, and conflict management.[134]

Since 1985, the thesis author has watched and participated in several collaborative processes within the Phoenix Urban Area. This includes chairing the State Metropolitan Medical Response System (MMRS) Committee that evolved into the Phoenix Urban Area Security Initiative (UASI) Working Group's Subcommittee on MMRS, being a founding member of the Phoenix UASI Rapid Response Team/Incident Support Team Subcommittee, creating the Phoenix UASI Training/Exercise Subcommittee, and serving as an original and continuous member of the Central Region AHIMT Committee. The fire departments that comprise the Phoenix Urban Area have a long tradition of collaboration on program creation, which intuitively, one could anticipate an

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[132] Northouse, Leadership Theory and Practice, 243.

[133] O'Leary and Vij, "Collaborative Public Management," 10.

[134] Ibid.

overall favorable perception with respect to agency and leader commitment and the value of collaboration. The PFD Study responses statistically support and confirm the observations made by the thesis author that there is a consensus that agency leaders value collaboration, which is reflected by members within the organizations.

It is the observation of the thesis author, based on DeWalt, DeWalt,[135] and Yin's[136] definitions of participant observation and fieldworker, that the leadership skills vary within each of the various subcommittees, including the Central Region AHIMT Committee. Review of documents and inherent knowledge reveals that success in collaborative processes within the Phoenix Urban Area is the result of individual commitment without formal training in managing or leading in team environment. Since 2010, the Central Region AHIMT Committee has not met on the agreed upon regular schedule with the cancellation of numerous meetings. To maintain interest, thus involvement, which results in collaboration, a meeting schedule that provides awareness of progress is essential. In support of this observation, Northouse contends in the theory of team leadership, "superior team leadership focuses constantly on both task and maintenance functions."[137]

C. QUESTION 2, COLLABORATION BENEFITS

1. The PFD Study

The second research question examined the benefits that people perceive can be gained from engaging in collaboration. One critical issue in the perception of the consequences of collaboration rests in its relationship to mission success. Without regard to what the other consequences may be bureaucratically, national security and public safety agencies are mission driven and therefore the critical outcomes are those related to the success of the mission. The PFD Study directly asked participants to respond to the statement "The success of my

[135] DeWalt and Billie R. DeWalt, *Participant Observation*, 39.

[136] Yin, Case Study Research Design and Methods, 111.

[137] Northouse, Leadership Theory and Practice, 247.

agency's mission requires working effectively with other organizations." Participants' were again offered the same seven categories of agreement to record their response. In this case, no respondents chose any of the three categories of disagreement (strongly disagree, disagree, somewhat disagree) and none registered a neutral response. Thirteen participants (81.25 percent) selected "strongly agree" and the remaining three participants (18.75 percent) selected "agree;" there were none in the "somewhat agree" category. These data show a remarkably strong belief that mission success demands collaboration. On a continuous response scale ranging from a low of 1.0 to a high of 7.0, these participants show a mean value of 6.81 (standard deviation = 0.4), indicating very strong agreement with the statement.

Given the perceived connection to mission accomplishment, it is important to further specify the command officer's perceptions of benefits that accrue from collaboration. The PFD Study also directly addressed specific benefits, asking participants to rank order the importance of five defined benefits of collaboration. Hocevar, Thomas, and Jansen cite five benefits of collaboration found in the work of Hansen and Nohria,[138] which are modified for the purpose of this paper to include:

1. mutually beneficial sharing of resources,
2. reduced operational costs,
3. positive relationships with other agencies,
4. knowledge of the mission of other agencies, and
5. establishing a common framework for identifying and solving problems.[139]

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[138] Morten T. Hansen and Nitin Nohria, "How to Build Collaborative Advantage," *MIT Sloan Management Review* 46, no. 1 (2004): 23.

[139] Susan P. Hocevar, Gail F. Thomas, Erik Jansen (2006), "Building Collaborative Capacity: An Innovative Strategy for Homeland Security Preparedness," in *Innovation through Collaboration* (Advances in Interdisciplinary Studies of Work Teams, vol. 12), ed. Michael M. Beyerlein, Susan T. Beyerlein, Frances A. Kennedy (United Kingdom: Emerald Group Publishing Limited, 2006).

Each study participant ranked each benefit on a scale where a value of 1.0 indicated the highest importance and 5.0 was the lowest importance. These data are presented in Table 2.

Each row shows one benefit and the rank it received from each of the sixteen study participants. Table 2 also shows the mean and standard deviation for each ranked benefit. The largest number of assignments to a rank of 1 was garnered by “positive relationships” (seven or 43.75 percent) and “resource sharing” (six or 37.5 percent). Having a “common framework” was ranked first in importance by three participants (18.75 percent) and both “reduced costs” and “mission knowledge” received no first importance rankings. The most straightforward approach to understanding a collection of importance rankings is to review the mean scores for each listed benefit.

Table 2 shows that “resource sharing” had the highest average ranking at 1.94 (standard deviation = 0.92). The small standard deviation indicates that there is a high level of agreement about the ranking across the 16 participants. In fact, all but four participants ranked “resource sharing” as either 1 or 2 in importance. The second highest average ranking was for “positive relationships” with a mean of 2.13 (standard deviation = 1.25). The relatively higher standard deviation indicates that participants were less consistent in their ranking of this outcome; the bulk of rankings are spread across the three highest categories. Thus, while the magnitude of the average rankings is close between these two outcomes, there was a greater consensus among participants about the rank of “resource sharing” than about “positive relationships. These two are clearly, however, the two highest ranked outcomes of collaboration and there is substantial agreement about their high importance among the command officers.

The next two highest ranked outcomes are also numerically close and the rankings place them at slightly below the center of the five-point importance scale. The third highest average ranking was for “reduced costs” with a mean of 3.31 (standard deviation = 1.07). This outcome received no rankings of 1 on importance, but it was ranked 2 by four participants (25.0 percent). The greatest

number of participants ranked this outcome at 3 (six or 37.5 percent) and three people each ranked it at 4 or 5. It is this wide spread across the importance category's that produces the larger standard deviation and that demands caution in interpreting the importance of "reduced costs." The average score places it in the middle importance position, but the rankings are spread nearly evenly across the four lower categories of the scale. Consequently, "reduced costs" is not seen as first in importance as an outcome of collaboration, it must be noted that its' relative importance is viewed very differently among the command officers who made the rankings.

The fourth ranked outcome in importance is "common framework" (referring to the missions of co-responding agencies). This outcome of collaboration produced a mean importance ranking of 3.38 (standard deviation = 1.5). Once again, while the average importance ranking places "common framework" slightly below the middle of the scale, the standard deviation is high. This outcome was ranked across the entire five-point scale, but with the greatest number of rankings in the lowest two categories. There is even greater spread across the scale with "common framework" than with "reduced costs." Indeed, three participants gave it the highest rank of 1, while four others assigned it the lowest rank of 5. The very high spread (disagreement among command officers) on both "reduced costs" and "common framework" undoubtedly represent differences between the agencies in which the command officers work.

One hypothesis is that the size of the home agency has an impact on the way command officers view both costs and problem solving. In larger agencies, costs are probably lower in importance than in smaller agencies where budgets are smaller and accountability higher. On the other hand, in small agencies, face-to-face contact is higher between command officers, problem solving approaches are shared frequently and command "norms" regarding how problems are framed and solved are closely held among incident commanders. In larger agencies, one would expect some variation between commanders simply because the size of the organization limits the rigid enforcement of "normative" problem solving

processes. Thus, larger agencies would tend to rank “common framework” higher in importance than smaller agencies who begin with a higher level of common problem solving frameworks by virtue of their size.

The PFD Study did include two categories for the size of agencies measured in terms of the number of sworn personnel. These categories are “300 or less personnel” and “greater than 300 personnel.” When the data is recalculated factoring in the size of agency, the mean ranking for “reduced costs” by agency size, the results are: “300 or less,” mean = 2.57 (standard deviation = .53); and “300+,” mean = 3.75 (standard deviation = 1.0). The smaller standard deviations indicate that there is agreement about rank by individuals within each of the three size categories. However, it is clear that “reduced costs” is ranked much higher in the smaller size category than among the larger agencies.

The difference is large enough to merit testing for statistical significance. The appropriate statistical test for significant mean differences between categories is one-way analysis of variance (ANOVA); this test is equivalent to a simple difference of means test, but produces a more conservative variance estimate.[140] For one-way ANOVA, the test statistic is the F distribution. For the two organizational sizes versus rank of “reduced costs” $F= 7.36$, $p < .05$. Using the common .05 probability level as the standard for statistical significance,[141] this finding indicates that taking into account the magnitude of the difference, the variance and the category sizes, the difference in importance ranking between small and larger organizations is statistical reliable and substantively meaningful. This finding means that an important qualifier needs to be added to the analysis: smaller organizations emphasis “reduced costs” as a benefit of collaboration much more than larger organizations.

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[140] Ferris J. Ritchey, *The Statistical Imagination: Elementary Statistics for the Social Sciences*, 2nd ed. (New York: The McGraw-Hill Companies, 2007), 428.

[141] Cuzzort and Vrettos, The Elementary Forms of Statistical Reason, 238.

When examining mean importance rankings for “common framework” there is a similar split by size. The mean ranking of “common framework” among agencies with 300 or fewer sworn personnel is 3.86 (standard deviation = 1.3), for those with 300 or more sworn personnel the mean is 2.88 (standard deviation = 1.6). These data reveal that, as predicted, command officers from smaller agencies place less importance on “common framework” than larger agencies. While the difference can be used to gain insight into the variance of importance rankings for “common framework,” it is not large enough to be statistically significant ($F=1.5$, $p > .05$). This means that although the difference can be explained using a size rationale, and the difference is in the predicted direction, when one takes into account the size of the difference, the number of cases in each category and the variance, ultimately the difference is not large enough to be statistically reliable.

Finally, the lowest average importance ranking was assigned to “mission knowledge” with a mean of 4.25 (standard deviation = 0.93). This places it near the bottom of the importance scale and the small standard deviation indicates little disagreement among raters regarding this low importance placement. The largest number of participants, eight (50.0 percent) chose a rank of 5 in importance for “mission knowledge” and an additional 5 participants (31.5 percent) selected a rank of 4. While “mission knowledge” across agencies is seen one consequence of collaboration, it is not viewed as a particularly important one. Command officers with any time in grade become aware of other agencies as their routine work commences and, if there is doubt, one can read documents and standard operating procedures. Inter-agency collaboration produces this outcome as well, but mission knowledge can be obtained in a variety of ways, while other benefits are more unique products of collaboration.

To maintain a statistically conservative approach to data analysis, one-way analysis of variance was used to test the remaining three types of benefits in the PFD Study for effects by size of the organizations or agencies. The mean difference by size for “resource sharing” generated an $F = 3.26$. $p > .05$; “positive

relationships" generated an F = 0.16, p > .05; and "mission knowledge" produced an F = 2.62, p > .05. Thus, none of the observed differences were statistically significant. In the absence of any compelling logic for why any of these benefit perceptions would be affected by agency size, this thesis author concludes that there is no statistical basis for qualifications of these findings by agency size.

The PFD Study data show that the collaboration benefits perceived as most important are "mutually beneficial sharing of resources" and the development of "positive relationships with other agencies." Next most important were "reduced operational costs" and enhancing a "common framework for identifying and solving problems." A qualifier was found with respect to "reduced operational costs;" this outcome of collaboration was seen as more important among smaller agencies than among larger agencies. Finally, developing "knowledge of the mission of other agencies" was seen to be one of the less important consequences of collaboration

Table 2. Ranking of Collaboration Benefits

	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Mean (SD)
Mutually beneficial sharing of resources	6 (37.5%)	6 (37.5%)	3 (18.75%)	1 (6.25%)	0 (0.0%)	1.94 (0.92)
Reduced operational costs	0 (0.0%)	4 (25.0%)	6 (37.5%)	3 (18.75%)	3 (18.75%)	3.31 (1.07)
Positive relationships with other agencies	7 (43.75%)	3 (18.75%)	4 (25.0%)	1 (6.25%)	1 (6.25%)	2.13 (1.25)
Knowledge of the mission of other agencies	0 (0.0%)	1 (6.25%)	2 (12.5%)	5 (31.5%)	8 (50.0%)	4.25 (0.93)
Common framework for identifying and solving problems	3 (18.75%)	2 (12.5%)	1 (6.25%)	6 (37.5%)	4 (25.0%)	3.38 (1.50)

2. Literature and Observations

Several benefits of collaboration are well documented in the academic literature, including the research of Morten T. Hansen, associate professor of entrepreneurship at INSEAD in Fontainebleau, France, and Nitin Nohria, Richard P. Chapman Professor of Business Administration at the Harvard Business School. The private sector provides the context for the benefits of collaboration they identify, which include:

1. cost savings,
2. better decision making occurs with the advice of colleagues from outside agencies
3. increased revenue through the sharing of expertise and products,
4. "innovation through the combination and cross-pollination of ideas" and
5. the capacity is increased for collective action from dispersed units.[142]

As mentioned previously, the PFD Study modified the benefits of collaboration as proposed by Hansen and Nohria to accommodate a public sector study. Although not an exact cross reference, the two most consistently highly ranked benefits found in the PFD Study, "resource sharing" and "positive relationships," approximate sharing of expertise and products and "innovation through combination and cross-pollination of ideas" found in Hansen and Nohria's work on collaboration.[143] In considering the history of collaborative processes within the Phoenix Urban Area, the responses of the participants in ranking resource sharing high, particularly with the agencies of less than 300 members, and positive relationships is an anticipated outcome. As a member of such an agency, the thesis author is appreciative and mindful of this conclusion.

[142] Hansen and Nohria, "How to Build Collaborative Advantage," 23.

[143] Ibid.

D. QUESTION 3, COLLABORATION INVESTMENT

1. The PFD Study

The third research question asked if agencies are willing to invest resources to promote collaboration and whether size or leadership support might have an effect on willingness. The PFD Study used one question to directly address this issue, “My agency is willing to invest in collaborative goals of the region, even if there are some costs to its own interests.” Participants were asked to indicate their level of agreement with this statement based on the seven-point agreement scale ranging from “strongly disagree” (assigned value = 1) through “strongly agree” (assigned value = 7). None of the participants selected any of the three disagree categories: “strongly disagree,” “disagree,” or “somewhat disagree.” One person (6.25 percent) selected “neutral.” All others selected one of the three agree categories: 5 (31.25 percent) “somewhat agree,” 2 (12.5 percent) “agree,” and 8 (50.0 percent) “strongly agree.” The mean of the distribution was 6.06 (standard deviation = 1.0). Thus, all but one participant perceived that their agencies were willing to invest, even if costs are involved to their own interests, and the majority of those (eight people or 50.0 percent) were in the category representing the highest level of agreement.

The data revealed a connection with collaboration benefits that people from smaller agencies tend to see “reduced costs” as more important than those from larger agencies. Therefore, it is possible that agency size may also affect willingness to collaborate in the face of costs for doing so. The mean level of agreement among those from small agencies that collaboration should continue even in the face of costs is 5.71 (standard deviation = 0.95). Among those from large agencies, the mean value is 6.25 (standard deviation = 1.1). A one-way ANOVA for this difference yields an $F = 0.93$, $p > .05$. Consequently, the small mean difference between small and large agencies is not statistically significant. The high degree of commitment to collaborating in spite of costs is not affected by differences in organization size.

One would expect that higher levels of leadership commitment to collaboration would be associated with higher levels of commitment to collaboration in spite of costs incurred. Since both leadership commitment and commitment to collaboration with costs are measured as continuous variables, the appropriate measure of relationship is Pearson's product-moment correlation coefficient. In this case, the r^2 value is .56, $p < .05$. This finding means that the variables are strongly positively correlated, such that as leadership commitment increases, so does organizational commitment to engage in collaboration without regard to cost.

2. Literature and Observations

From the personal observations of the thesis author, the correlation between a high degree of commitment to collaboration in spite of costs and organizational size in the Phoenix Urban Area was anticipated. The PFD Study was the first formal measurement of the collaborative capacity within Phoenix Urban Area that this author is aware of. The primary organization in the Phoenix Urban Area that would incur a high cost due to collaboration is the city of Phoenix. In 1976, as an example, the Phoenix Fire Department began training new firefighters for other cities at no cost to the other cities and this type of collaboration extended into other programs, including dispatching services, common standard operating procedures, special operations training, and the labor groups merging into one local. Interestingly, it is the observation of the thesis author that the term "collaboration" is not used on a frequent basis to describe the process of multi-jurisdictional multi-agency meetings created to resolve problems and issues confronting the Phoenix Urban Area.

E. QUESTION 4, COLLABORATION LEVELS AND CONSISTENCY

1. The PFD Study

The fourth research question asked what levels of collaboration have been observed in the Phoenix Urban Area AHIMT system, how consistent the collaboration has been, and whether agency members in general are prepared to

engage as members of a collaborating organization. The PFD Study asked that participants rate, on a seven-point scale (where 1 = no collaboration and 7= completely collaborative): “the level of collaboration in the Phoenix Urban Area in developing the All Hazards Incident Management Teams?” Participant rankings of the level of collaboration range almost completely across the scale; no one selected the lowest ranking indicating no collaboration (see Table 3). For the remaining six ranks, there is virtually an even distribution: Either two or three participants chose each rank for the level of collaboration from rank 2 through rank 7. This produces a mean score of 4.56, but with a standard deviation of 2.4, indicating that while the average ranking is near the center of the scale, the spread is so wide that the mean cannot adequately capture the distribution. Thus, there is very little agreement about how much collaboration has been taking place over the years.

In cases like this, the appropriate process is to determine if another variable may be exerting influence on the command officer’s perception of the level of collaboration. Agency size is one possible external influence. It may be that larger agencies, which are typically attended to first in collaborative arrangements because of the resources they bring with them, see more collaboration than smaller agencies. A smaller agency may have to wait for new resources and qualify personnel for training and equipment, thereby seeing other (larger) agencies progress while the smaller agencies do not. For small agencies, collaboration may indeed be important, but they may also see it as less frequent when they need resources.

One-way ANOVA was used to assess the impact of agency size on perception of collaboration. The mean perceived level of collaboration for participants from agencies with 300 or fewer personnel is 4.0 (standard deviation 1.1). The mean level of perceived collaboration for people from agencies with more than 300 personnel is 6.0 (standard deviation = 1.1). For each size, the small standard deviation indicates substantial agreement among command officers on the average rating. More important, as predicted, participants from

smaller organizations saw a much lower level of collaboration (ranking = 4) than those from larger organizations (ranking = 6). Furthermore, for this analysis, $F = 7.46$, $p < .05$, indicating that the difference is statistically significant. Thus, size of organization influences perception of the level of collaboration, with small organization representatives seeing much less collaboration than those from large organizations.

The PFD Study also addressed the consistency of collaboration over time. The question posed was: “how would you rate the consistency of collaboration in the Phoenix Urban Area.” The participants were given a seven-point scale for responses, where “1 is not consistent and 7 is totally consistent.” The bottom row on Table 3 shows the distribution of participant responses. None of the participants felt that collaboration should be labeled “not consistent” in the lowest category. One person (6.25 percent) gave consistency a ranking of 2, while three people (18.75 percent) ranked consistency at 3. The largest proportion of participants, seven (43.75 percent), ranked consistency of collaboration at slightly above the midpoint of the scale; a value of 4, while there were no rankings of 5, but three people (18.75 percent) rated consistency at 6, while two people (12.5 percent) assigned a rank of 7. The mean value for this ranking scale was 4.44 (standard deviation = 1.5). While there is some spread along the ranking continuum, the smaller standard deviation suggests the mean is not a flawed representation of the distribution itself. However, since the size of the agency was significantly related to perceptions of how much collaboration took place, a conservative analysis dictates that the impact of size on perceptions of consistency also be checked.

Again, larger agencies may have had more interagency contacts and more apparent collaboration over time because the size of the projects they dealt with reflected the large size of the agencies and thus took longer and required more contacts making collaboration appear more consistent over time. Smaller agencies may have had fewer projects initiated, thereby having fewer contacts

that might be seen as collaborative and that may have been infrequent enough to make collaboration contacts “spotty” or inconsistent.

A one-way ANOVA was conducted using perceived consistency as the dependent variable and organizational size as independent. The mean consistency perception for participants from agency’s with 300 or fewer personnel was 3.71 (standard deviation = 1.2). The mean consistency rating for people from agencies with more than 300 personnel was 5.13 (standard deviation = 1.5). This is a substantial difference between means; people from smaller agencies perceive collaboration consistency as more than an order of magnitude lower than people from larger agencies. The F = 3.62, p = .07. The probability coefficient is close to .05, where it would be judged statistically significant, but still fails to reach statistical significance. In cases like this, it is appropriate to mention that consistency, without qualification, was rated moderate or just above the center of the scale. An important qualifier, although the difference is not large enough to be statistically consistent, is that smaller agencies tend to see consistency of collaboration as much lower than larger agencies. Future research, with different and larger databases, may be expected to clarify this observed difference.

Table 3. Levels and Consistency of Collaboration

	1 (lowest)	2	3	4	5	6	7 (highest)	Mean (SD)
Level of collaboration	0 (0.0%)	2 (12.5%)	3 (18.75%	3 (18.75%)	3 (18.75%)	2 (12.5%)	3 (18.75%)	4.56 (2.4)
Consistency of collaboration	0 (0.0%)	1 (6.25%)	3 (18.75%	7 (43.75%)	0 (0.0%)	3 (18.75%)	2 (12.5%)	4.44 (1.5)

Finally, the issue remains of the preparedness of agency members to operate within a collaborating organization. There are two questions on the PFD

Study questionnaire that address this issue. The first question asks participants to indicate their agreement with the statement: “Members of my agency have been trained in the appropriate conflict management and team building skills needed to work effectively with other organizations.” The response format is the seven-point agreement scale where “strongly disagree” is assigned a value of 1 and “strongly agree” is set at a value of 7. Table 4 shows the distribution of answers to this question. None of the participants selected any of the options that indicated disagreement: “strongly disagree,” “disagree,” or “somewhat disagree.” Three participants (18.5 percent) elected a “neutral” response, while four participants (25.0 percent) selected “somewhat agree” and nine people (56.25 percent) selected “agree,” and no participants chose “strongly agree.” The mean scale score is 5.8 (standard deviation= .80) indicating a concentration of cases just below “agree” on the scale. Clearly, these responses show that command officers agree that conflict management and team building training has been available to their agency members. No one disagreed with the statement and more than half (56.25 percent) were in the unconditional “agree” category. The small number of command officers who selected “neutral” and “somewhat agree” are probably expressing caution that stems from the fact that since 2008, cities in the Phoenix Urban Area have reduced but not curtailed training efforts.

The second question in the PFD Study data that addressed member preparedness to function in collaborating organizations asked participants to indicate their agreement with the statement: “Members of my agency know whom to contact in all other relevant organizations for information, collaboration, and/or decisions.” The response scale again was the seven-point attitude scale ranging from a low score associated with “strongly disagree” to a high score associated with “strongly agree.”

The bottom row in Table 4 reports the distribution obtained from the command officer judgments. None of the command officers selected “strongly disagree” as their assessment. One person (6.25 percent) each chose “disagree” and “somewhat disagree.” Two people (12.5 percent) reported “neutral” and the

remaining 12 (75.0 percent) indicated some degree of agreement. Six participants (37.5 percent) reported “somewhat agree,” four (25 percent) reported “agree,” and two (12.5 percent) reported “strongly agree.” The mean scale score is 5.06 (standard deviation = 1.3), a rating that falls just above “somewhat agree.” Aside from the small number of cases that fall outside the “agree” categories, it is clear that most command officers are confident that their agency members are knowledgeable about external agency contacts. The largest single cell is “somewhat agree” (37.5 percent), but this again probably reflects caution born of municipal cutbacks during the recessionary period. Both accessibility to extra-departmental personnel and skills in team building and conflict management are certainly critical to successful operations in a collaborative environment and the command officers believe their members are prepared.

Table 4. Conflict Management, Team Building and Agency Contacts

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree	Mean (SD)
Conflict Mgt & team bldg	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (18.75%)	4 (25.0%)	9 (56.25%)	0 (0.0%)	5.38 .80
Knowledge of agency contacts	0 (0.0%)	1 (6.25%)	1 (6.25%)	2 (12.5%)	6 (37.5%)	4 (25.0%)	2 (12.5%)	5.06 1.3

With respect to research question 4, levels of collaboration in the Phoenix Urban Area were judged to be on the higher side of the seven-point scale, 11 command officers (56.5 percent) rated collaboration, as above point 4. However, there was a distinct and statistically significant difference between perceptions of the small and large agencies. Representatives of large agencies rated the frequency of collaboration as much higher than those of small agencies. The consistency of collaboration was perceived as moderate—7 people (43.75 percent) rated it at point 4 on the scale, with four people ranking consistency below that and five ranking it above that point. Although the difference was not statistically significant, there was a large difference, again, between representatives of small and large agencies. In this case, command officers from large agencies perceived that collaboration occurred much more consistently than those from small agencies. Finally, the majority of command officers believed that the members of their agencies were prepared to engage and function in a collaborative environment. PFD Study participants agreed that their members were adequately trained in team building and conflict management and that the members were effective in identifying external agency contacts when needed.

2. Literature and Observations

The analysis results from the PFD Study for the first three research questions are consistent with the outcomes of the analysis of the fourth research question. In the context of pragmatism, command officers from larger agencies participate in collaborative processes, both internally and externally, on a more frequent basis than command officers from agencies with less than 300 personnel, which are reflected in the data. Command officers from the larger agencies perceive the consistency of the collaborative processes as higher than their counterparts in smaller organizations. Another potential explanation for the difference in the perception of consistency relates to the frequency. Due to the less frequency of collaboration, and more time between events, bias is

introduced into the observation of consistency for command officers from agencies with less than 300.

An interesting observation from the PFD survey is that agency size had no effect on command officer beliefs that their members were trained for conflict management and in team building skills. It is not clear to an observer—or from records—where members may have gotten such training. Since 2004, collective training within the Phoenix Urban Area has focused on standard National Incident Management System (NIMS) Incident Command Classes at the 300, 400, AHIMT, and position specific classes. These courses are not constructed to address the requirements of successful collaboration and certainly not conflict management nor team building in any systematic fashion. Given this, it is an anomaly that command officers report the perception that these courses have prepared agency personnel for participation in collaboration. It is unclear in the documentation of training, meeting minutes, and participative observation as to why the command officers maintain a belief that their respective agencies have provided training in collaborative processes and conflict management, which is worthy of further study.

F. QUESTION 5, COLLABORATION, PERFORMANCE, PREPAREDNESS

1. The PFD Study

Research question five asked about the relationship between collaboration and performance, as well as the impact of the collaboratively created AHIMT program on preparedness in the Phoenix Urban Area. The PFD Study directly asked command officers, “How would you rate the impact of collaboration on your All Hazards Incident Management Team’s performance?” A seven-point scale was provided for responses, ranging from 1 (collaboration had no impact) through 7 (collaboration had total impact). This response distribution is shown in the first row of Table 5.

None of the command officers felt that collaboration had “no impact” on performance. One person (6.25 percent) rated the impact at 2, two people (12.5

percent) rated the impact at 3 and three people (18.75 percent) rated impact at 4 or the mid-point of the scale. The remaining 10 people (62.5 percent) rated the impact of collaboration on performance higher than the mid-point. Among those, three (18.75 percent) rated the impact at 5, one (6.25 percent) rated it 6, and the plurality of six people (37.5 percent) rated it as 7. The mean scale score is 5.19 (standard deviation = 1.7). Certainly the majority of command officers rated the impact of collaboration above the mid-point of the scale, indicating over-all support for the contention that collaboration enhances performance. The mean score of 5.19 is well above the mid-point, although three people (18.75 percent) rated the impact of collaboration below the mid-point of the scale.

Research question 5 also asked about the impact of the developmental stage of the agency AHIMT on the perception that collaboration has a positive impact on performance. The reasoning here is that agencies which have more developed teams have seen the effects of collaboration in the creation and growth of those teams. Agencies that are in earlier phases of work have not had the opportunity to see growth or to connect collaboration to that growth. The PFD Study asked command officers to classify the progress of their AHIMT into categories ranging from “just started” to “fully functional.” Based on scores near the mid-point of the scale, another analysis category was created to represent “partially functional.” One-way ANOVA is the statistical technique appropriate to assessing the differences among means in three categories; Table 5 presents the analysis results.

The mean rating of the positive impact of collaboration on performance (measured as a 7 point scale) for AHIMT’s that are “barely started” is 3.8 (standard deviation = 1.9). The mean for agencies with “partially functioning” AHIMT’s is 4.5 (standard deviation = .577) and the mean for agencies with “fully functioning” AHIMT’s is 6.5 (standard deviation = .78). Therefore, as predicted, as the level of functioning increases, so does the perception that collaboration enhances performance. This finding is statistically significant ($F = 8.3$, $p < .05$) and allows qualification of the general trend that command officers believe

collaboration enhances performance, by noting that this belief increases as the developmental stage of an AHIMT approaches full functionality.

Table 5. Perception of Developmental Status

	Mean performance Impact score	Standard Deviation	F test
"Barely Started"	3.80	1.9	
"Partially Functional"	4.50	.57	
"Fully Functional"	6.57	.78	
F test			F=8.3, p<.05

The last part of research question 5 addressed the impact of the collaboratively created AHIMT program on preparedness in the Phoenix Urban Area. The PFD Study asked command officers to rate their level of agreement with the statement: "If the AHIMTs ceased to collaborate among themselves, there would be significant [negative] impact on the Phoenix Urban Area's preparedness and capability to manage large-scale special events and incidents." Again, participants in the study were given the agreement scale with "strongly disagree" as the lowest scale point and "strongly agree" as the highest scale point.

The bottom row of Table 6 shows the distribution of these responses. None of the command officers selected any of the three "disagreement" options and only two (12.5 percent) chose "neutral." Two participants (12.5 percent) registered "somewhat agree," seven (43.75 percent) reported "agree" and four (25.0 percent) reported "strongly agree." The mean score was 5.87 (approximately located at the "agree" category), with a standard deviation of 0.99. These data clearly indicate that the command officers as a group strongly believe that ending collaborative arrangements among the AHIMTs would negatively impact preparedness and operations in the Phoenix Urban Area.

Table 6. Impact of Collaboration on Performance and Preparedness

LEVEL OF IMPACT	1 (lowest)	2	3	4	5	6	7 (highest)	Mean (SD)
Collaboration Impact on Performance	0 (0.0%)	1 (6.25%)	2 (12.5%)	3 (18.75%)	3 (18.75%)	1 (6.25%)	6 (37.5%)	5.19 (1.7)
AGREEMENT OPTIONS	Strongly Disagre	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongl y	Mean (SD)
Negative Impact on Preparedness	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (12.5%)	2 (12.5%)	7 (43.75%)	4 (25.0%)	5.87 (.99)

The responses of the command officers indicate a clear perception of the positive impact of collaboration on the AHIMT program (mean of 5.19 and a SD of 1.7), which is consistent to the belief that if collaboration were eliminated, a negative impact would result in the Phoenix Urban Area's ability to manage large-scale special events and incidents. The one-way ANOVA statistic regarding the perception of collaboration in relation to performance and the status of the development phase of an AHIMT, predictively says that the AHIMT that is more advanced views collaboration as having greater impact. This matches the current status of the three AHIMT in the Phoenix Urban Area: the Central AHIMT is functional, the East Valley AHIMT lacks credentials and an agreement on reimbursements and commitments, and the status of the West Valley AHIMT is very much in question.

2. Literature and Observations

The purpose of the Phoenix region's three AHIMT is to tackle shared challenges for first responders in managing catastrophic incidents and large-scale special events that typically do not adhere to municipal borders. Such situations require an effective command structure that implements an Incident Command System that meets federal mandates. The success and evolution of the Phoenix Urban Area's three AHIMTs in managing these challenges depend on a commitment to collaboration.

VI. CONCLUSIONS AND RECOMMENDATIONS

A. SUMMARY OF FINDINGS

The development of Phoenix Urban Area All Hazards Incident Management Team program has and will continue to require a leadership group focused on the collaborative process. The data generated and observations of the command officers (both fire and police departments) show a positive perception of the existing leader's emphasis on collaboration, the frequency of collaboration, and the benefits of collaboration. There is minimal agreement on how much collaboration has taken place in developing the AHIMT program over the years. The benefits of collaboration are believed to include the sharing of resources, positive relationships with other agencies, reduced operational costs, and providing a common framework for identifying and solving problems. Command officers from agencies of less than 300 members tend to place a higher emphasis on reduced cost, while command officers of agencies with greater than 300 members tend value a common framework for identifying and solving problems. This reflects the environment in which each group works; however, knowledge of the differences stemming from agency size can be used by leadership to better explain benefits and reduce tension. The Phoenix Urban Area command officers believe that leadership's commitment to collaboration is substantive enough to accept cost without concern for an immediate return on the investment.

1. Research Question One—Leadership Emphasison Collaboration

The first research question in this study was formulated to determine the emphasis placed on collaboration by the multi-jurisdictions and multi-agencies that participate in the AHIMT program in the Phoenix Urban Area. Question one, "Do agency leaders emphasize collaboration, is it observed frequently, and do members believe that benefits accrue from collaborating with other agencies?"

Three questions in the PFD Study (see Appendices A and B) provided data to examine the value placed on collaborative processes.

Using a Likert-type scale with seven possible choices, ranging from strongly disagree (1) to strongly agree (7), participants in the PFD Study were asked rate personal agreement with direct statements: in question 3, “multi-agency collaboration occurs frequently within my organization,” in question 4, “members in my agency believe that collaboration with other organizations is beneficial,” and in question 5, “the leaders of my agency emphasize the benefits of multi-agency collaboration.” The data revealed a strong emphasis by leadership for collaboration with the mean score of 6.31 and a standard deviation of 1.07. The data analysis resulted in similar responses for determining how frequently collaboration and members of public safety agencies believe the benefit occurs as a result of collaboration that occurs in the Phoenix Urban Area, with a mean of 6.31 for both responses and a standard deviation of 1.3 and 1.07 respectively.

The statistic Pearson’s product-moment correlation coefficient (r^2) provided a method to test the correlation between and among command officer agreement with each question. All three correlation coefficients were determined statistically significant; therefore, perceived collaboration in the Phoenix Urban Area was found to be emphasized by leadership. This leader emphasis on collaboration was also found to be positively correlated with both believing that incidents of collaboration took place more frequently and with the belief that collaboration is beneficial.

2. Research Question Two—Collaboration Benefits

The second research question in this study was constructed to examine the benefits perceived to be gained by participating in collaborative processes. The second research question proposed, “Does mission success require collaboration and how are different potential benefits of collaboration perceived? How do participants rank the importance potential collaboration outcomes such

as resource sharing, reduced costs, better comprehension of outside agency missions and creation of enhanced frameworks for problem solving?"

National security and public safety agencies are mission-driven and therefore the critical outcomes are those related to the achievement of missions. With this premise in mind, the PFD Study participants were asked to register their level of agreement with the claim: "The success of my agency's mission requires working effectively with other organizations." A Likert-type score with seven possible choices ranging from strongly disagree (1) to strongly agree (7) was provided. Among the 16 respondents, 13 (81.25 percent) strongly agreed and the remaining three respondents (18.75 percent) agreed with the statement, showing a strong contention that mission success demands collaboration.

Given the connection between mission success and collaboration, it is important to examine the factors related to participant perceptions of the benefits of collaboration. The participants in the PFD Study were asked to rank and assign priority to five benefits of collaboration including:

1. Mutually beneficial sharing of resources,
2. Reduced operational costs,
3. Positive relationships with other agencies,
4. Knowledge of the mission of other agencies, and
5. Common framework for identifying and solving problems.

Of the participants, seven (43.75 percent) ranked positive relationships with other agencies and six (37.5 percent) ranked mutually beneficial sharing of resources as their highest perceived benefits. Three respondents ranked having a common framework for identifying and solving problems as the highest benefit (18.75 percent). No participant believed that reduced operational costs or knowledge of the mission of other agencies was the greatest benefit of collaboration.

An analysis of the mean scores for each benefit provides the most interpretable means for evaluating rankings of importance. Although six participants ranked mutually sharing of resources as the primary benefit, it had

the highest average ranking with a mean of 1.94 and a standard deviation of 0.92. Overall, sharing of resources had the highest level of agreement among all 16 command officers. The second highest perceived benefit of collaboration was positive relationships with other agencies, with a mean of 2.13 and a standard deviation of 1.25.

The PFD Study accounted for two different sizes (number of sworn members) for participating agencies: less than 300 members and greater than 300 members. These categories of agency size were used to test whether size of home agency had an impact on command officer perceptions. Differences were assessed using a one-way ANOVA (the test statistic is the F distribution). When size of agency is factored into the ranking data, using a .05 probability level as the standard for statistical significance, the results are statistically reliable and substantively meaningful. Agencies of less than 300 members tend to place greater benefit on reduced cost than their colleagues in larger agencies. Another assumption is a larger agency tends to place greater benefit on providing a common framework to identify and solve problems. Utilizing the same statistical analysis, in evaluating the F distribution is 1.5, and probability greater than .05, the difference is not statistically significant. Thus, a conclusion that larger agencies tend to place greater benefit on providing a common framework for identifying and solving problems is not statistically reliable, but there is some basis for further study with a larger database of respondents.

The data from the PFD Study does show a strong sentiment that mission success demands collaboration. In order to accomplish mission success, collaboration provides the benefits of mutually sharing resources and develops positive relationships with other agencies.

3. Research Question Three—Collaboration Investments

The third research question in this study was devised to evaluate if agencies are willing to invest resources to promote collaboration and whether size or leadership support might have an effect on willingness. The PFD Study

asked command officers to indicate their agreement with the statement: “My agency is willing to invest in collaborative goals of the region, even if there are some costs to its own interests.” Level of agreement with this statement was recorded on the Likert-type seven-point agreement scale ranging from strongly disagree (1) through strongly agree (7).

Of the participants in the PFD Study, all but one of the respondents indicated some form of agreement (as opposed to disagreement) with their respective agency’s willingness to collaborate, even if collaboration was not immediately in the agency’s own interest. In considering the importance that agencies of less than 300 members place on reduced cost as a benefit of collaboration as previously noted in research question 2, it is appropriate to evaluate if a small agency would also be reluctant to collaborate if there is a known or perceived associated cost. The data for size of the respondent’s agency is found in PFD Study question 2. The mean level of agreement with the notion that collaboration should be pursued in spite of costs for agencies of less than 300 is 5.71 (standard deviation = 0.95). The mean average for agencies with greater than 300 members is 6.25 with a standard deviation of 1.1. A one-way ANOVA for this difference yields an $F = 0.93$, p is greater than .05, thus there is no statistically significant difference between the perceptions of officers from the two sizes of agencies.

An expectation of higher levels of leadership commitment to collaboration should be associated with higher levels of commitment to collaboration in spite of costs incurred. Since both leadership commitment and commitment to collaboration with costs are measured as continuous variables, the appropriate measure of relationship is Pearson’s product-moment correlation coefficient. In this case, the r^2 value is .56, $p < .05$. This finding means that the variables are strongly positively correlated, such that as leadership commitment increases, so does organizational commitment to engage in collaboration without regard to cost.

4. Research Question Four—Collaboration Levels and Consistency

The fourth research question was formulated to determine what levels of collaboration have been observed in the Phoenix Urban Area AHIMT system, how consistent the collaboration has been, and whether agency members in general are prepared to engage as members of a collaborating organization. The fourth research question asks, “How much collaboration characterizes the AHIMT in the greater Phoenix area? Has this collaboration been consistent over the years? Operationally, are agency members prepared to engage as members of collaborative organizations?”

To appraise the degree of collaboration in the Phoenix Urban Area AHIMT program, the PFD Study asked, “Since 2008, how would you describe the level of collaboration in the Phoenix Urban Area in developing the All Hazards Incident Management Teams?” No respondent selected the lowest ranking indicating no collaboration, participant rankings of the level of collaboration range almost completely across the seven point scale with virtually an even distribution. The mean score is 4.56, but is associated with a large standard deviation of 2.4; thus, the mean cannot adequately capture the wide distribution of cases across the categories. This tells us that as a group, command officers simply do not agree about the levels of collaboration that operated during the development process. Agency size was a factor in the respondent’s perceptions for the benefit of reduced cost in collaboration and was therefore considered as potential factor in the evaluation of the level of collaboration in developing the Phoenix Urban Area AHIMT program.

As mentioned previously, a one-way ANOVA was used to assess the impact of agency size on perception of collaboration. The mean perceived level of collaboration for participants from agencies with 300 or fewer personnel is 4.0 (standard deviation 1.1). The mean level of perceived collaboration for people from agencies with more than 300 personnel is 6.0 (standard deviation = 1.1). For each size, the small standard deviation indicates substantial agreement

among command officers on the average rating. More important, as predicted, participants from smaller organizations saw a much lower level of collaboration (ranking = 4) than those from larger organizations (ranking = 6). Furthermore, for this analysis, $F = 7.46$, $p < .05$, indicating that the difference is statistically significant.

In order for collaboration to transpire in the case of the Phoenix Urban Area AHIMT program, members of multiple agencies and jurisdictions must have the capacity and desire to participate. Two questions in the PFD Study were created to measure the capacity and desire for collaboration among the participants. Question 18 asked participants to rate their agreement with the claim: “Members of my agency have been trained in the appropriate conflict management and team building skills needed to work effectively with other organizations.” A Likert-type seven-point scale provided the respondents with the ability strongly disagree (1) up to strongly agree (7). Three respondents were neutral and the balance selected a form of agreement with the statement. The mean scale score is 5.8, with a standard deviation of .80. This clearly reveals that the command officers perceive that training in conflict management and team building has been made available to their agencies.

Question 19 of the PFD study also addresses member preparedness to participate in a collaborative environment. The question asks participants to rate their agreement with the statement: “Members of my agency know whom to contact in all other relevant organizations for information, collaboration, and/or decisions.” The responses were recorded on a Likert-type seven-point scale, with (1) representing strongly disagree and (7) representing strongly agree. Four responses were recorded at neutral or in disagreement and the balance of the responses either somewhat agreed, agreed, or strongly agreed. The mean scale score is 5.6, with a standard deviation of 1.3. Thus, Phoenix Urban Area command officers are confident that their agency members are knowledgeable about external agency contacts.

Size of the organization influences perception of the level of collaboration, with small organization representatives seeing much less collaboration than those from large organizations. There is little agreement about how much collaboration has taken place since the genesis of the Phoenix Urban Area AHIMT program. Representatives of large agencies rated the frequency of collaboration as much higher than those of small agencies. The consistency of collaboration was perceived as moderate; seven people (43.75 percent) rated it at a 4 (the mid-point) on the scale, with four people ranking consistency below that and five ranking it above that point. Although the difference was not statistically significant, there was a large difference, again, between representatives of small and large agencies. In this case, command officers from large agencies perceived that collaboration occurred much more consistently than those from small agencies. Finally, the majority of command officers believed that the members of their agencies were prepared to engage and function in a collaborative environment. PFD Study participants agreed that their members were adequately trained in team building and conflict management and that the members were effective in identifying external agency contacts when needed.

5. Research Question Five—Collaboration Performance and Preparedness

The fifth research question in the PFD Study was designed to explain the relationship between collaboration and performance, as well as the impact of the collaboratively created AHIMT program on preparedness in the Phoenix Urban Area. The fifth research question asked, “How does collaboration affect AHIMT performance? Is this perception of the importance of collaboration for performance affected by the stage of development of the individual agency AHIMT? Would the absence of collaboration among teams and jurisdictions in the greater Phoenix area affect aggregate preparedness?

The PFD Study asks the respondents: “How would you rate the impact of collaboration in your All Hazards Incident Management Team’s performance?” A

Likert-type seven-point scale was provided for responses with a (1) indicating collaboration had no impact and a (7) indicating that collaboration had total impact on performance. The participating command officers all agreed that collaboration had some impact on performance. The lowest ranking selected was a 2 and six respondents ranked the impact of collaboration on performance as a 7 (highest possible rank). The mean scale score is 5.19, with a standard deviation of 1.7.

The PFD Study asked about the impact of the developmental stage of the AHIMT on the perception that collaboration has a positive impact on performance. Question 9 provides the respondents with a Likert-type seven-point ranking system with 1 indicating the respondent's belief that their AHIMT was just started, to 7 indicating theirs was a fully functional AHIMT. Based on the pattern of responses from the command officers, this scale was reduced to three categories: just started; partially functional; fully functional. A one-way ANOVA is the statistical technique appropriate to assessing differences among means in three categories. The mean rating for AHIMT program perceived as barely started is 3.8, with a standard deviation of 1.9. The mean rating for partially functioning AHIMT's is 4.5, with a standard deviation of .577, and mean rating for fully functioning AHIMT's is 6.5, with a standard deviation of .78. Predictably, as the level of perceived functioning increases so does the perception that collaboration enhances performance.

The last part of research question five addressed the impact of the collaboratively created AHIMT program on preparedness in the Phoenix Urban Area. The PFD Study question asked command officers to rate their level of agreement with the statement: "If the AHIMTs ceased to collaborate among themselves, there would be significant [negative] impact on the Phoenix Urban Area's preparedness and capability to manage large-scale special events and incidents." Again, participants in the study were given the Likert-type agreement scale with (1) strongly disagrees and (7) as strongly agrees. Two participants chose a neutral response, while all other participants chose a level of agreement

with the statement. The mean score was 5.87, with a standard deviation of 0.99. Thus, the perception of the Phoenix Urban Area's command officers is that ending collaboration among the AHIMT program would adversely impact preparedness and operations in the region.

B. CONCLUSIONS

The Phoenix region's multijurisdictional agencies must address several issues before successful deployment of the three AHIMT can occur. MacManus might suggest that collaborative processes are a cultural norm in the Phoenix area, but this is not the case.[144] Initiating a collaborative process is not a simple task. Agencies often value the culture of autonomy over collaboration. The Central AHIMT has achieved deployable status, while significant tasks remain for both the East Valley AHIMT and West Valley AHIMT to obtain deployable status. Anecdotally, it is possible that interest in supporting the East Valley and West Valley AHIMT is waning. In 2010, a noticeable change occurred with bi-monthly and quarterly Phoenix Urban Area AHIMT Committee meetings becoming less frequent with numerous cancellations. The data suggest that the size of organization influences perception of the level of collaboration, with small organization representatives seeing much less collaboration than those from large organizations. There is little agreement about how much collaboration has taken place since the genesis of the Phoenix Urban Area AHIMT program. Representatives of large agencies rated the frequency of collaboration as much higher than those of small agencies.

The irregularity of meetings coincides with a Phoenix Fire Department command staff rotation that may have brought in a member to the leadership role that perceived the AHIMT program as established, had other priorities besides the AHIMT program, or lacked available time to commit to the program.[145]

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[144] MacManus and Caruson, "Emergency Management."

[145] Tom Shannon (Fire Chief, Scottsdale Fire Department) telephone interview with author, July 16, 2012.

O'Leary and Vij describe the rationale for individuals participating in collaboration, as the "primary reason to collaborate is if you think you can create something better than if you did it yourself."[146] Collaboration provides a methodology where participating agencies find agreement on resolution, which enhances "ownership" and commitment to the regional performance management efforts."[147] The data also show strong correlation coefficients that are statistically significant to support the conclusion that collaboration in the Phoenix Urban Area is highly emphasized by leadership and correlated with both frequency with which collaboration is observed and a belief that it is beneficial. Thus, leadership has an opportunity and a continual challenge for the Phoenix Urban Area AHIMT program in ensuring that progress is sustained in training, equipment, and intergovernmental agreements.

The potential for organizational culture differences exists between multiple jurisdictions and disciplines in the Phoenix AHIMT. Such differences can potentially create conflict. Shannon states, "Organizational culture and norms are potential barriers for collaboration."[148] In preparing the security plans for the 2002 Winter Olympics, Bellavita notes that a bad day incorporated numerous cultural issues between multi-jurisdictions and interlinked problems.[149] However, when the operational missions began, cultural differences were set aside.[150] The Phoenix Urban Area has a long-standing tradition of interaction, partnerships, and collaboration between public safety agencies. However, cultural difference is a challenge to consider for members in leadership positions.

Although the three AHIMT in the Phoenix region began the development process simultaneously, the teams are now in different phases of maturation. As

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[146] O'Leary and Vij, "Collaborative Public Management," 4.

[147] Caudle, "Basic Practices Aiding High-performance Homeland Security Regional Partnerships," 9.

[148] Shannon, "Leveraging Successful Collaborative Processes," 22.

[149] Bellavita, "Changing Homeland Security," 11–12.

[150] Ibid.

mentioned previously, the Central AHIMT, located in Phoenix, has a designation as a deployable asset regionally, statewide, and nationally. The East and West Valley AHIMT are further behind in the development phase. All positions within an IMT require a task book detailing demonstrated competencies. A person that is currently certified in a position must witness a demonstration of the competencies of the developing team member and may sign the task book upon successful completion of a given task. The East and West Valley AHIMT have personnel that lack both completed task books for their positions and personnel that have not attended training for their position specific roles. As a result, a disparity exists between the East and West Valley AHIMT comparative to the Central AHIMT. The perception of collaboration is clearly impacted by the disparity in advancement between the three AHIMTs. The data generated from the PFD Study reveals that as the level of functionality increases, so does the perception that collaboration enhances performance.

Another significant challenge that exists for the Phoenix Urban Area AHIMT is the critical need to create and test evaluative instruments to assess measurable goals and objectives. An overarching strategy document is necessary that will delineate concise and quantifiable targets that allows for objective evaluation of progress of the program. Collaborative efforts are necessary for the design phase to provide adequate feedback on the developed instruments and survey questions, so to support the goal of providing data with meaningful results. The collaborative process ensures that the evaluation is participatory and builds commitment on the part of those involved to use results to make adjustments with the program. These tools will assist in gathering data and then allowing the team members to determine whether the AHIMT programs are effectively carrying out planned activities, and the extent to which it is achieving its' stated objectives and anticipated results.

C. RECOMMENDATIONS

1. AHIMT Program Strategy

The numerous problems identified above require an overarching strategy composed of several objectives for the development of a successful program. The primary strategy is to establish three functioning all hazards incident management teams to provide incident command during large-scale special events and disasters. One of the key goals to accomplish this strategy is to create and sustain an atmosphere of collaboration.

a. Collaboration

According to William Bratton, retired Los Angeles Police Chief and commissioner of both the Boston and New York City Police Departments and Zachary Tumin, faculty chair of the Harvard Kennedy School's Science, Technology, and Public Policy Program, "successful collaboration comes down to performance. Performance is both the measure and the driver of collaboration."[151] It is essential for the leadership of the Phoenix Urban Area AHIMT program to retain commitment to the plan for team development. As noted in the summary of findings, data generated and observations of the command officers of the Phoenix Urban Area reflect a positive perception regarding leadership's emphasis on collaboration, the frequency of collaboration, and the benefits of collaboration, but there is minimal agreement on how much collaboration has taken place in developing the AHIMT program.

Recognizing that collaboration is a viable goal that requires an unrelenting commitment will pay the eventual dividend of an established and functional program.[152] A primary objective is to provide training in collaborative processes for the leadership of the Phoenix Urban Area with the necessary skills to manage and reinvigorate the AHIMT program. Leadership must advance the

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[151] William Bratton and Zachary Tumin, *Collaborate or Perish! Reaching Across Boundaries in a Networked World* (New York: Random House, Inc., 2012), 190.

[152] Ibid., 252.

program in manner that all three AHIMT's in the Phoenix Urban Area become viable resources for the region as well as all levels of government during the time of crisis and during incidents of national significance.

b. Governance

A second goal is providing governance of the AHIMT program is a function of the collaborative process between the public safety agencies representing multiple jurisdictions. Two alternatives are available for consideration to meet this objective with each option presenting a different degree of difficulty to achieve.

In the context that the AHIMT program requires a continuous collaborative process as a multijurisdictional and multiagency group, governance can operate in a parallel capacity with the Phoenix Urban Area Security Initiative Working Group. Debate exists over whether AHIMT program can be classified as a Council of Governments under Title 9 of the Arizona Revised Statutes. This first alternative or concept would allow the AHIMT program to formalize as a Council of Governments and seek funding from the participating jurisdictions for sustainment of the program. In exchange for cooperative funding, the AHIMT program would provide incident command functions at a large-scale event at no cost to a participating agency. Joint funding through the involved municipalities would reduce the need for sustainment funding through federal homeland security grant programs. Formalizing the AHIMT program could potentially provide a mechanism for reimbursement of wages from FEMA or EMAC in the event of an out of state deployment of an AHIMT. Assuming the Council of Governments argument is not an applicable method, political involvement in the form of passing state legislation is an alternative if the Council of Government approach is determined viable.

A second option and approach to governance would include the development of an overarching intergovernmental agreement (IGA) with participating agencies as signatories. The content of the IGA will address

authorities, organizational structure, training requirements, special event management, transfer and maintenance of equipment, and invoicing for wage recovery from the appropriate jurisdiction or government agency.

c. Personnel

The third goal is having membership of each AHIMT comprised of public safety personnel from three geographical areas within the Phoenix Urban Area. The primary objective is acceptance and utilization of AHIMT during large-scale special events, which will require a leadership group focused on the benefits for individual communities. An inclusive approach will generate a progressive environment with motivated individuals. A secondary objective is a transition period for assumption of incident command responsibilities during special events.

Three years will provide the opportunity for those public safety members that are not involved in the AHIMT to recognize that they have a choice of participating in the program or accept the loss of financial benefits from not working large-scale special events. The first year of the transition period would consist of a "shadowing process," in which personnel with specific AHIMT positions would observe those individuals serving in that capacity for one of the cities during a special event. The second year would involve joint responsibilities between the specific AHIMT positions and the representatives from the involved city. The third year would entail the AHIMT managing the special event with personnel from the host city observing. During the fourth year, the AHIMT would manage special events throughout the Phoenix Urban Area. This process would allow for completion of proof of competency for AHIMT members in specific positions.

d. Competency

The fourth goal of the AHIMT program is assurance and determination of competency for individuals involved in specific positions. The primary standards body for evaluating and setting performance measurements of

specific positions within national incident management teams is the National Wildfire Coordinating Group (NWCG). The NWCG is a cooperative group consisting of seven federal agencies involved in forest fire management. The Federal Emergency Management Agency (FEMA) is currently developing broader criteria for specific positions utilizing an all-hazards approach rather than focusing on a model for wild land fire protection.

Regardless of which performance standards, also known as position specific task books, are selected for use by the Phoenix Urban Area AHIMT program, individuals must be provided an opportunity to demonstrate their skills for evaluation.[153] Regional disasters are not the time to capture and document performance. In Tom Shannon's thesis for the Center for Homeland Defense and Security, he sagely pointed out, "It is widely accepted that the incident is the worst place to pass out business cards that introduce key players to each other."[154]

e. Relevance

The fifth goal of the AHIMT program is remaining relevant and providing continuous value to the Phoenix Urban Area. Over sixty percent of the State's resources and population resides in the Phoenix Urban Area, along the five highest risk critical infrastructures and all of the major special events. The challenge of proving the efficacy of the program will continually surface in conjunction with countering the argument for disbanding two of the three AHIMT in the Phoenix Urban Area.

2. Exercises

The most advantageous method for accomplishing the fourth goal is conducting "hands-on" exercises in two phases at the Operation Vigilant Guard

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[153] National Wildfire Coordinating Group, "National Fire and Aviation Executive Board Memorandums," last modified October 24, 2012, National Wildfire Coordinating Group, retrieved April 6, 2013, from http://www.nwcg.gov/pms/taskbook/taskbook.htm.

[154] Shannon, "Leveraging Successful Collaborative Processes," 9.

exercise-training simulator. Built in 2011 by FEMA and known locally in the Phoenix Urban Area as “the rubble pile,” the Operation Vigilant Guard training site simulates scenarios involving structural collapse, confined space, and rappelling on the grounds of the Phoenix Fire Department’s Special Operations Section. This “hands-on” area consists of approximately a half acre of broken concrete, pipes, steel beams, wood, and junked automobiles.

During either October or November of 2013, the first phase of training, task demonstration, and evaluation, will mandate each of the three AHIMT to participate in an eight-hour exercise. Over a three-day period, each team would arrive, setup, and assume incident command functions of a structural collapse scenario at the Operation Vigilant Guard training site. Technical rescue teams will work underneath an AHIMT and conduct the operations as determined necessary by the AHIMT incident commander and operations section chief. All other AHIMT positions will provide support and direction as the scenario dictates allowing for the evaluation of tasks by certified members of either Type 1 or Type 2 incident management teams.

The second phase of competency demonstration will require a three-day assignment in March 2014 for each AHIMT to the Operation Vigilant Guard training site. The Mayor of Phoenix and local news media will greet the initial AHIMT and provide known information regarding a structural collapse involving a high-profile facility with known victims. The assigned AHIMT would establish command, create a delegation of authority, and work with the technical rescue teams, SWAT, and rapid response teams. The team members will remain on-site for 72-hours managing the incident. During the last portion of the third-day, the assigned AHIMT will prepare for demobilization and transfer of command to the second AHIMT. The process will continue through to the third AHIMT, which would complete the assignment, terminate command, and return the facility to the Mayor’s control on the ninth day of the exercise.

With political and news media attention, credibility of the AHIMT will increase; thus, creating more demand to utilize an AHIMT, which would make the

efforts to collaborate realized.[155] The notoriety gained by participating in above-mentioned scenarios and completion of task books will serve to create a motivation to participate in the AHIMT by public safety personnel throughout the Phoenix Urban Area. Upon completion of the two phases of demonstration of skills, all three AHIMT will be functional and deployable by July 1, 2014.

The expenditure for the three AHIMT in the Phoenix Urban Area between 2008 and 2013 exceeds three million dollars; thus, there is justifiable concern from non-supporters of the AHIMT program over return on investment. As of May 2013, an expenditure of approximately $440,000 of Homeland Security Grant Funds would complete the equipment cache for all three AHIMT. The primary objective is to secure this amount of funding to secure the outstanding equipment. The objective to meet the goal of remaining relevant will then shift to constant utilization of the three AHIMT wherever possible, provide regular training, and operate as fiscally prudent as possible. By providing incident command functions for large-scale special events and disasters throughout the nation, the investment of time and funding will prove justified.

3. Conclusion

Urban areas no longer function in isolation. The purpose of the Phoenix region's three AHIMT's is to tackle shared challenges for first responders in managing catastrophic incidents and large-scale special events that typically do not adhere to municipal borders. Such situations require an effective command structure that implements an Incident Command System that meets federal mandates. The success and evolution of the Phoenix region's three AHIMT in managing these challenges will depend on a commitment to collaboration.

Collaboration provides the circumstance for numerous agencies from varying jurisdictions to work out regional plans and prepare for responses to disasters before they occur, including the appropriate use of all hazards incident

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[155] Bratton and Tumin, *Collaborate or Perish! Reaching Across Boundaries in a Networked World*, 134.

management teams. More research and review of the available literature on collaboration in multiple public safety agencies and all hazards incident management teams is necessary. Collaboration can foster development of mutual respect and appreciation for differing roles. It offers opportunity for agencies to understand not just their organization, but how other agencies operate. Collaboration in its ideal state offers delivery of public safety responses that meet a community's requirements in tangible ways. Through the development of collaborative processes, multi-jurisdictional stakeholders can build upon partnerships that construct opportunities to maximize the use of available resources, minimize duplication, and allow responders to deliver public safety services in a cohesive and systematic manner.

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VII. RECOMMENDATIONS FOR FURTHER STUDY

Voluminous research is available regarding the benefits, capacity, and quality of collaborative processes in both the private sector and between governmental agencies at all levels. Social science research provides several frameworks for conducting and measuring the success of collaboration. However, academic studies and research on incident management teams (IMT) are non-existent. Two primary areas for future research include additional examination of the Phoenix Urban Area AHIMT program rest in evaluating perceptions of collaboration and scholarly evaluations of IMT programs to establish a body of knowledge regarding the social science principles associated with IMT.

The analysis of the PFD Study (see Appendices A and B) indicated that smaller agencies tend to see consistency of collaboration as much lower than larger agencies. A study of a different and larger population of command officers may provide clarification that reaches statistical significance in the evaluation of the consistency of collaboration. An additional study of a larger population of command officers could also conclusively examine the hypothesis that larger agencies tend to place greater benefit on providing a common framework for identifying and solving problems instead of placing value on cost savings and sharing of resources. The results of the analysis from the segment of the PFD Study regarding benefits did not prove statistically reliable, which forms the basis for further study with a larger database of respondents. Question 18 of the PFD Study asked, “Members of my agency have been trained in the appropriate conflict management and team building skills needed to work effectively with other organizations.” A positive response was recorded with (mean value 5.3, SD of 0.8) the Phoenix Urban Area command officers contending that training on how to collaborate has occurred in the region. Yet, the thesis author is unaware of the type of training occurring and was unable to locate documentation specific to training in collaborative processes in the Phoenix Urban Area. Further

research may clarify this observed difference. Examination of the Phoenix region Type 3 all hazards incident management teams will provide guidance for increasing collaboration, measurable strategic goals and objectives, training, and eventual deployment status for all three teams.

New York University Professor of Risk Engineering Nassim Taleb, author of *The Black Swan, the Impact of the Highly Improbable*, describes black swan events, both natural disasters and man-made, as a rarity, creating extreme impact, and human nature attempts to characterize retrospectively.[156] Such events are occurring more frequently with larger impacts on geographical areas. Managing the response and recovery efforts is more complex, thus the need for functioning IMT is becoming greater. The *2010 Quadrennial Security Review Report* in Goal 5.3 states "When an incident occurs that is beyond local response capabilities, communities must be able to obtain assistance from neighboring jurisdictions and regional partners quickly, making a robust regional capacity vital to effective emergency response."[157] A functioning AHIMT can provide the required command functions within the Incident Command System (ICS) as mandated by the *National Response Framework*.[158]

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[156] Nassim N. Taleb, *The Black Swan: The Impact of the Highly Improbable*, 2nd ed. (New York: Random House, Inc., 2010), xxii.

[157] United States Department of Homeland Security, *Quadrennial Homeland Security Review Report*, 62.

[158] United States Department of Homeland Security, *National Response Framework*, 10.

APPENDIX A. PHOENIX FIRE DEPARTMENT AHIMT STUDY QUESTIONNAIRE

Thank you for participating in this study. We are evaluating the collaborative efforts of the three Phoenix Urban Area All Hazards Incident Management Teams and what tasks remain for full deployment of all teams. We appreciate that your time is valuable and thank you for your consideration of these questions.

Question 1 – Are you a member of (please circle):

Law Enforcement Fire Service

Question 2 – The number of sworn members of your agency is (please circle): Less

than 100 Between 101 and 300 Greater than 300

Question 3 – Rating Scale – One Answer

Multi-agency collaboration occurs frequently within my organization.

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongl Agree
1	2	3	4	5	6	7

Question 4 – Rating Scale – One Answer

Members in my agency believe that collaboration with other organizations is beneficial.

Strongly Disagree	Strongly Agree	Disagree	Somewhat Disagree	Somewhat Agree	Neutral	
1	2	3	4	5	6	7

Question 5 – Rating Scale – One Answer

The *leaders* of my agency emphasize the benefits of multi-agency collaboration.

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongl Agree
1	2	3	4	5	6	7

Question 6 – Rating Scale – One Answer

Please indicate your level of agreement with this statement: “The success of my

agency's mission requires working effectively with other organizations."

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongl Agree
1	2	3	4	5	6	7

Question 7 – Rating Scale – One Answer

My agency is willing to invest in collaborative goals of the region, even if there are some costs to its own interests.

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongl Agree
1	2	3	4	5	6	7

Question 8 – Ranking Scale

Please rank the following benefits of collaboration in order of importance, with the greatest benefit ranked number 1, second greatest benefit number 2, etc.

1. _____ A. Mutually beneficial sharing of resources

2. _____ B. Reduced operational costs

3. _____ C. Positive relationships with other agencies

4. _____ D. Knowledge of the mission of other agencies

5. _____ E. Common framework for identifying and solving problems

Question 9 – Rating Scale – One Answer

How would you rate the development of your All Hazards Incident Management Team, with 1 being barely started and 7 being fully functional?

1	2	3	4	5	6	7

Question 10 – Rating Scale – One Answer

Please indicate your level of agreement with this statement: "The three All Hazards Incident Management Teams in the Phoenix Urban Area are at the same stage of development."

Strongly Disagree | Disagree | Somewhat Disagree | Neutral | Somewhat Agree | Agree | Strongly Agree
1----------2----------3----------4----------5----------6----------7

Question 11 – Rating Scale – One Answer

How would you rate the *performance* of your All Hazards Incident Management Team in terms of its capability to manage large-scale incidents and special events, with 1 being not capable and 7 being fully capable?

1 2 3 4 5 6 7

Question 12 – Rating Scale – One Answer

How would you rate the *impact of collaboration* in your All Hazards Incident Management Team's performance, with one (1) having no impact and seven (7) having total impact?

1 2 3 4 5 6 7

Question 13 – Rating Scale – One Answer

Since 2008, how would you describe the *level of collaboration* in the Phoenix Urban Area in developing the All Hazards Incident Management Teams, with one (1) being no collaboration and seven (7) being a completely collaborative effort?

1 2 3 4 5 6 7

Question 14 – Rating Scale – One Answer

Since 2008, how would you rate the *consistency of collaboration* in the Phoenix Urban Area in developing the All Hazards Incident Management Teams, with one (1) being not consistent at all and seven (7) being totally consistent?

1 2 3 4 5 6 7

Question 15 – Ranking Scale

Please rank in the order the factors that contribute to high quality, consistent collaboration in developing the Phoenix Urban Area All Hazards Incident Management Teams, with the greatest factor ranked number 1, second greatest factor number 2, etc.

1. _____ A. Priority and time given to it by members
2. _____ B. AHIMT committee leadership style

3. _____ C. AHIMT committee leadership consistency

4. _____ D. Process management

5. _____ E. Competency of AHIMT committee members

6. _____ F. Competency of AHIMT committee leadership

Question 16 – Open Ended – Comments

Please use the box space to share any special comments regarding collaboration over time.

Question 17 – Rating Scale – One Answer

Please indicate your level of agreement with this statement: “If the Regional Committee for establishing three All Hazards Incident Management Teams in which you participate or participated ceased to collaborate, there would be significant impact on Phoenix Urban Area’s preparedness and capability to manage large-scale special events and incidents.”

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

Question 18 – Rating Scale – One Answer

Please indicate your level of agreement with this statement: “Members of my agency have been trained in the appropriate conflict management and team building skills needed to work effectively with other organizations.”

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

Question 19 – Rating Scale – One Answer

Please indicate your level of agreement with this statement: “Members of my agency know whom to contact in all other relevant organizations for information, collaboration, and/or decisions.”

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

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APPENDIX B. RAW DATA

PhoenixData.sav

	SizeQ2	FrequencyQ3	ValueQ4	LdrsQ5	Q6	Q7
1	3	6	6	6.00	7	4
2	1	2	3	3.00	7	5
3	2	7	7	7.00	7	5
4	.	7	7	7.00	7	7
5	2	7	7	7.00	7	7
6	1	5	6	6.00	7	5
7	3	7	7	7.00	7	7
8	3	7	7	7.00	7	7
9	3	7	7	7.00	7	7
10	2	7	7	7.00	7	6
11	2	7	7	7.00	7	7
12	3	7	6	7.00	6	7
13	2	5	6	5.00	6	5
14	3	7	7	6.00	7	6
15	3	6	5	6.00	7	5
16	3	7	6	6.00	6	7

PhoenixData.sav

	Q8a	Q8b	Q8c	Q8d	Q8e	Q9
1	2	4	5	3	1	6
2	1	2	3	5	4	2
3	2	3	1	5	4	4
4	1	5	2	3	4	7
5	1	3	2	5	4	2
6	1	3	2	5	4	1
7	1	2	3	5	4	7
8	2	5	3	4	1	7
9	3	4	1	5	2	7
10	2	3	1	4	5	1
11	1	2	3	4	5	4
12	4	5	1	2	3	7
13	3	2	4	5	1	2
14	2	3	1	4	5	4
15	2	3	1	4	5	5
16	3	4	1	5	2	7

PhoenixData.sav

	Q10	Q11	Q12	Q13	Q14	Q15a
1	4	4	7	4	4	.
2	1	3	7	4	3	1
3	3	4	5	4	4	1
4	2	7	7	5	4	3
5	2	5	2	6	4	.
6	2	4	4	6	6	1
7	1	7	7	3	4	4
8	1	7	7	7	7	5
9	2	6	6	7	7	1
10	2	.	3	3	3	1
11	1	5	4	2	4	2
12	1	7	5	3	3	5
13	1	3	3	2	2	1
14	2	5	5	5	6	1
15	1	6	4	5	4	5
16	2	7	7	7	6	1

PhoenixData.sav

	Q15b	Q15c	Q15d	Q15e	Q15f	Q16
1	.	.	.	.	.	.
2	6	2	5	3	4	.
3	2	3	6	5	4	1
4	6	4	1	5	2	1
5	.	.	.	.	.	.
6	5	2	6	3	4	.
7	2	3	6	5	1	.
8	6	3	4	2	1	.
9	3	4	5	6	2	.
10	2	3	4	5	6	.
11	4	3	1	5	6	.
12	6	4	3	2	1	1
13	3	4	2	5	6	.
14	6	4	5	3	2	.
15	1	2	3	4	6	.
16	2	3	4	5	6	.

PhoenixData.sav

	Q17	Q18	Q19
1	4	6	5
2	6	4	2
3	5	5	3
4	7	6	7
5	6	6	5
6	6	4	5
7	6	5	5
8	.	5	7
9	7	6	5
10	6	5	4
11	7	4	6
12	4	6	6
13	6	6	4
14	5	6	6
15	7	6	5
16	6	6	6

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LIST OF REFERENCES

Alreck, Pamela L. and Robert B. Settle. *The Survey Research Handbook*. 2nd ed. Homewood, IL: Irwin, 1985.

Arizona Division of Emergency Management. "Arizona Division of Emergency Management: Operations Section." Arizona Division of Emergency Management. Retrieved June 6, 2013, from http://www.dem.azdema.gov/operations/emresponse/aimt.html.

Babbie, Earl R. *The Practice of Social Research*, 13th ed. Belmont, CA: Wadsworth Publishing Company, 2013.

Babbie, Earl R. *Survey Research Methods*. 2nd ed. Belmont, CA: Wadsworth Publishing Company, 1990.

Bauer, Jocelyn, Michael Smith, and April Armstrong. *The Collaborative Advantage Realizing the Tangible Benefits of Regional Transportation Operations Collaboration*. Washington, DC: United States Department of Transportation, 2007. Retrieved June 24, 2012, http://ops.fhwa.dot.gov/publications/benefits_guide/index.htm.

Bratton, William and Zachary Tumin. *Collaborate or Perish! Reaching Across Boundaries in a Networked World*. New York: Random House, Inc., 2012.

Bellavita, Christopher. "Changing Homeland Security: What Is Homeland Security?," *Homeland Security Affairs* 4, no. 2 (2008): 13–14.

Caudle, Sharon. "Basic Practices Aiding High-performance Homeland Security Regional Partnerships." Master's thesis, Naval Postgraduate School, Monterey, CA, 2006. Defense Technical Information Center. Retrieved July 17, 2012, from http://oai.dtic.mil/oai/oai?verb =getRecord&metadataPrefix=html&identifier =ADA484113.

Caudle, Sharon. *Handbook of Practical Program Evaluation: Using Qualitative Approaches*. 1st ed. San Francisco, CA: Jossey Bass Publishers, 1994.

Cuzzort, Raymond P. and James S. Vrettos. *The Elementary Forms of Statistical Reason*. New York: St. Martin's Press, 1996.

Denzin, Norman K. and Yvonna S. Lincoln. *Handbook of Qualitative Research*. 1st ed. Thousand Oaks, CA: Sage Publications, 1994.

Derksen, Kevin Michael. “Commentary: The Logistics of Actionable Intelligence Leading to 9/11.” *Studies in Conflict & Terrorism* 28, no. 3 (May 2005): 261. DOI: 10.1080/10576100590928133.

DeWalt, Kathleen M. and Billie R. DeWalt. *Participant Observation: A Guide for Fieldworkers*. 2nd ed. Lanham, MD: AltaMira Press, 2010.

Federal Bureau of Investigation, *Summary of Penttbom Investigation* (Washington, DC: Federal Bureau of Investigation, 2004): 18. Federal Bureau of Investigation. Retrieved July 28, 2013, from http://vault.fbi.gov/9–11%20Commission%20Report/9–11-fbi-report-2004-02%28feb%29.

Field, Andy. *Discovering Statistics Using SPSS for Windows: Advanced Techniques for the Beginner*. 1st ed. Thousand Oaks, CA: Sage Publications, 2000.

Hansen, Morten T. and Nitin Nohria. “How to Build Collaborative Advantage.” *MIT Sloan Management Review* 46, no. 1 (2004): 23.

Healey, Joseph F. *Statistics: A Tool for Social Research*. 8th ed. Belmont, CA: Wadsworth Publishing Company, 2009.

Hocevar, Susan P., Erik Jansen, and Gail F. Thomas, “Inter-Organizational Collaboration: Addressing the Challenge,” *Homeland Security Affairs* 7 (September 2011).

Hocevar, Susan P., Gail F. Thomas, Erik Jansen (2006), “Building Collaborative Capacity: An Innovative Strategy for Homeland Security Preparedness.” In *Innovation through Collaboration* (Advances in Interdisciplinary Studies of Work Teams, vol. 12), edited by Michael M. Beyerlein, Susan T. Beyerlein, Frances A. Kennedy. United Kingdom: Emerald Group Publishing Limited, 2006.

Homeland Security Coordinating Council. *National Strategy for Homeland Security*. Washington, DC: Homeland Security Coordinating Council, 2007. United States Department of Homeland Security. Retrieved June 23, 2012, from http://www.dhs.gov/xabout/history/gc_1193938363680.shtm.

Hoover, Kenneth and Todd Donovan. *The Elements of Social Scientific Thinking*. 9th ed. Belmont, CA: Wadsworth Publishing Company, 2008.

Jansen, Eric Susan P. Hocevar. Rene G. Rendon, and Gail F. Thomas, "Interorganizational Collaborative Capacity: Development of a Database to Refine Instrumentation and Explore Patterns." *Acquisition Sponsored Research Report Series*. Monterey, CA: Naval Postgraduate School, 2008.

Jardine, Sheryl. "Impact of Incentives and Requirements of Group Collaboration." Master's thesis, Naval Postgraduate School, Monterey, CA, 2010. Retrieved May 17, 2012, from http://www.nps.edu.Library/index.aspx.

Kahneman, Daniel. *Thinking, Fast and Slow*, 1st ed. New York: Farrar, Straus and Giroux, 2011.

Kardas, Edward P. and Tommy Milford. *Using the Internet for Social Science Research and Practice*. 1st ed. Belmont, CA: Wadsworth Publishing Company, 1996.

Kawulich, Barbara. "Participant Observation as a Data Collection Method." *Qualitative Social Research* 6, no. 2 (May 2005): 128.

Kettl, Donald F. *System under Stress: Homeland Security and American Politics*. 1st ed. Washington, DC: CQ Press, 2007.

Knoben, Joris and Leon A. G. Oerlemans. "Proximity and Inter-organizational Collaboration: A Literature Review." *International Journal of Management Reviews* 8, no. 2 (May 2006): 71–89.

Lewis, Ted G. *Bak's Sand Pile: Strategies for a Catastrophic World*. Williams, CA: AGILE Press, 2011.

MacManus, Susan A. and Caruson, Kiki. "Emergency Management: Gauging the Extensiveness and Quality of Public-and Private-Sector Collaboration at the Local Level." *Urban Affairs Review* 47, no. 2 (2010): 282. DOI: 10.1177/1078087410362050.

McClendon, McKee. *Statistical Analysis in the Social Sciences*. 1st ed. Independence, KY: Cengage Learning, 2004.

McKay, Jim. "All-Hazards Type 3 Incident Management Teams Are Catching On." Last modified March 16, 2012. Emergency Management. Retrieved July 13, 2012, from http://www.emergencymgmt.com/disaster/All-Hazards-Type-3-Incident-Management-Teams.html.

McKinney, Matthew, John Parr, and Ethan Seltzer, "Working across Boundaries," *Land Lines* 16, no. 3 (2004): 6, Lincoln Institute of Land Policy. Retrieved July 13, 2012, from http://www.lincolninst.edu/pubs/912_Working-Across-Boundaries.

National Academy of Public Administration. *Powering the Future: High Performance Partnerships*. Washington, DC: National Academy of Public Administration, 2003. Retrieved October 17, 2012, from www.napawash.org/wp-content/uploads/2011/02/03_03.pdf.

National Commission of Terrorist Attacks upon the United States. *The 9/11 Commission Report: Final Report of the National Commission of Terrorist Attacks upon the United States*. New York: WW Norton and Company, 2004.

National Wildfire Coordinating Group. *Advanced ICS: ICS for Command and General Staff Complex Incidents I-400 Student Workbook* (NFES 2908). Boise, ID: National Wildfire Coordinating Group, 2006.

National Wildfire Coordinating Group. "National Fire and Aviation Executive Board Memorandums." Last modified October 24, 2012. National Wildfire Coordinating Group. Retrieved April 6, 2013, from http://www.nwcg.gov/pms/taskbook/taskbook.htm.

Neuendorf, Kimberly. *The Content Analysis Guidebook*. 1st ed. Thousand Oaks, CA: Sage Publications, 2002.

Northouse, Peter G. *Leadership Theory and Practice*. 5th ed. Thousand Oaks, CA: Sage Publications, 2010.

O'Leary, Rosemary and Nidhi Vij. "Collaborative Public Management: Where Have We Been and Where Are We Going?" *The American Review of Public Administration* (2012): 2. DOI: 10.1177/0275074012445780.

Patton, Michael. *Qualitative Research and Evaluation Methods*. 3rd ed. Thousand Oaks, CA: Sage Publications, 2002.

Perry, Ronald. "Incident Management Systems in Disaster Management." *Disaster Prevention and Management* 12, no. 5 (2003): 405.

Perry, Ronald and Michael K. Lindell. *Emergency Planning*. 1st ed. Hoboken, NJ: John Wiley & Sons, 2007.

Resource Ordering and Status System. "ROSS Home." Last modified March 5, 2012. Resource Ordering and Status System. Retrieved August 12, 2013, from http://ross.nwcg.gov/.

Rossi, Peter, Howard Freeman, and Mark Lipsey. *Evaluation*. 6th ed. Thousand Oaks, CA: Sage Publications, 1999.

Rubin, Herbert J. and Irene S. Rubin. *Qualitative Interviewing: The Art of Hearing Data*. 3rd ed. Thousand Oaks, CA: Sage Publications, 2012.

Shannon, Thomas. “Leveraging Successful Collaborative Processes to Improve Performance Outcomes in Large-Scale Event Planning: Super Bowl, a Planned Homeland Security Event.” Master’s thesis, Naval Postgraduate School, Monterey, CA, 2010. Defense Technical Information Center. Retrieved August 12, 2013, from http://oai.dtic.mil/oai/oai?verb=getRecord&metadataPrefix=html&identifier=ADA518698.

Simon, Julian L. and Paul Burstein. *Basic Research Methods in Social Science*. 1st ed. New York: McGraw-Hill, 1985.

Southwest Coordination Center. “Southwest Coordination Center (SWCC).” Last modified June 6, 2013. Southwest Coordination Center. Retrieved June 6, 2013, from http://gacc.nifc.gov/swcc/admin/about/about.htm.

Taleb, Nassim N. *The Black Swan: The Impact of the Highly Improbable*. 2nd ed. New York: Random House, Inc., 2010.

Team Center. “IMT Center.” Team Center. Retrieved July 15, 2012, from http://imtcenter.net/main/default.aspx.

United States Census, “Maricopa County QuickFacts from the U.S. Census Bureau,” United States Census, last modified June 27, 2013. Retrieved August 12, 2013, from http://quickfacts.census.gov/qfd/states/04/04013.html.

United States Department of Agriculture, Forest Service. “Responding in Force to Hurricane Katrina.” *Fire Management Today* 66, no. 3 (summer 2006): 62.

United States Department of Homeland Security. *National Response Framework*. Washington, DC: United States Department of Homeland Security, 2008. Federal Emergency Management Agency. Retrieved August 12, 2013, from www.fema.gov/pdf/.../nrf/nrf-core.pdf.

United States Department of Homeland Security. *Quadrennial Homeland Security Review Report: A Strategic Framework for a Secure Homeland*. Washington, DC; United States Department of Homeland Security, 2010. Retrieved August 12, 2013, from http://www.dhs.gov/xabout/gc_1208534155450.shtm.

United States Fire Administration and Federal Emergency Management Agency. “USFA Type 3 Incident Management Team (AHIMT) Overview.” Last modified February 16, 2012. United States Fire Administration and Federal Emergency Management Agency. Retrieved July 14, 2012, from http://www.usfa.fema.gov/fireservice/subjects/incident/imt/ahimt-overview.shtm.

United States Government Accountability Office. *Results-Oriented Government: Practices That Can Help Enhance and Sustain Collaboration among Federal Agencies*. Washington, DC: United States Government Accountability Office, 2005.

United States Government Printing Office, "Homeland Security Presidential Directive 5: Directive on Management of Domestic Incidents." *Weekly Compilation of Presidential Documents* 39, no. 10 (February 8, 2003), 280–285. Retrieved August 12, 2013, from https://www.hsdl.org/?view&did=439105.

United States Government Accountability Office. *Combating Terrorism: Observations on Crosscutting Issues*. Washington, DC: United States Government Accountability Office, 1998.

United States Government Accountability Office. *Combating Terrorism: Observations on the Nunn-Lugar-Domenici Domestic Preparedness Program*. Washington, DC: United States Government Accountability Office, 1998.

United States Government Accountability Office. *Urban Area Security Initiative: FEMA Lacks Measures to Assess How Regional Collaboration Efforts Build Preparedness Capabilities*. Washington, DC: United States Government Accountability Office, 2009.

West, Gary. *Evaluating and Implementing the Incident Management Team Concept*. Washington, DC: Federal Emergency Management Agency, Learning Resource Center, 2006. Retrieved July 15, 2012, from https://www.hsdl.org/?abstract&did=682343.

Williams, Paul. "The Competent Boundary Spanner." *Public Administration* 80, no. 1 (2002): 112–113.

Yin, Robert K. *Case Study Research Design and Methods*. 4th ed. Thousand Oaks, CA: Sage Publications, 2009.

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